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published in
Handbook of Evidence-Based Practice in Clinical Psychology
2012

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OVERVIEW

Unipolar depressive disorders are highly prevalent (European Study of the Epidemiology of Mental Disorders [ESEMeD], 2004; Kessler et al., 1994), have a high incidence (Waraich, Goldner, Somers, & Hsu, 2004), are associated with huge loss of quality of life in patients and their relatives (Saarni et al., 2007; Ustun, Ayuso-Mateos, Chatterji, Mathers, & Murray, 2004), with increased mortality rates (Cuijpers & Smit, 2002), with high levels of service use, and with enormous economic costs (Berto, D'Ilario, Ruffo, Di Virgilio, & Rizzo, 2000; Greenberg & Birnbaum, 2005; Smit, Cuijpers, Oostenbrink, Batelaan, de Graaf, & Beekman, 2006). At this moment major depression is the fourth disorder worldwide in terms of disease burden, and it is expected to be the disorder with the highest disease burden in high-income countries by the year 2030 (Mathers & Loncar, 2006).

According to the *DSM-IV*, an individual has a major depressive disorder when this person has a depressed mood most of the day and nearly every day during a 2-week period, or has a markedly diminished interest or pleasure in all, or almost all, activities most of the day, nearly every day. Apart from these two key symptoms, this person also has to suffer from other symptoms during the 2-week period, including significant weight loss, insomnia or hypersomnia, psychomotor agitation or retardation, fatigue or loss of energy, feelings of worthlessness or excessive or inappropriate guilt, diminished ability to think or concentrate, indecisiveness, or recurrent thoughts of death. In order to meet the criteria for a major depression, at least five symptoms should be present. A dysthymic disorder is a depressive disorder in which the person has a depressed mood for most of the days, for more days than not, for at least 2 years. In addition, at least two of the other symptoms of major depression have to be present.

Apart from major depression and dysthymia, as defined in the *DSM-IV*, several other types and operationalizations have been proposed. As we will see later in this chapter, many psychotherapy researchers define depression by a cut-off score on a self-report scale for depression, such as the Beck Depression Inventory (BDI) (Beck, Ward, Mendelson, Mock, & Erbaugh, 1961), or the Center for Epidemiological Studies–Depression Scale (CES-D) (Radloff, 1977). Some studies specifically focus on persons with subthreshold depression. In most of these studies, subthreshold depression is defined as scoring above a cut-off score on a self-report scale, but not meeting criteria for major depression or dysthymia. In the *DSM-IV*, several other depressive disorders are defined,

such as minor depression (with the same criteria as major depression, except that the number of symptoms is two to four, instead of five or more), and brief recurrent depression (also with the same criteria as major depression, only the period is shorter than 2 weeks, and there are several short but very intense periods). In this chapter, we will focus on all psychotherapies for all depressive disorders (except bipolar disorders, which will be reviewed in another chapter) that have been studied in research.

Prevalence of a depressive disorder is twice as high in women than in men, and there are indications that the prevalence of major depression is somewhat lower in older adults than in younger adults, but that the prevalence of milder, minor depression is higher (Beekman, Deeg, Braam, Smit, & Van Tilburg, 1997). On average, a major depressive episode lasts for 20 weeks and the average patient will suffer from four episodes. Relapse rates after recovery from a first episode is 20% to 30% in 3 years. When a person has suffered from three or more episodes, the chance of relapse is 70% to 80%.

In this chapter, we will review evidence-based psychotherapies for depression in adults. For each evidence-based type of psychotherapy, we will summarize consensus panel recommendations, review the results of earlier meta-analyses of efficacy studies, and provide a meta-analytic summary of randomized controlled studies examining each type of psychotherapy. Because of the large number of evidence-based treatments and the very large number of studies to be reviewed in this chapter, we will not cover the results of single subject experimental analyses and meta-analyses of single subject experiments.

METHODS

Selection of Evidence-Based Treatments

For selection of evidence-based treatments we used a database of 115 controlled studies of psychotherapy for adult depression. This database, how it was developed, and the methods used, have been described in detail elsewhere (Cuijpers, van Straten, Warmerdam, & Andersson, 2008). Key materials, overviews of the goals and mission, and an overview of all other meta-analyses that have used this database can be downloaded from the Web site for this project (www.evidencebasedpsychotherapies.org). In brief, the database was developed through a comprehensive literature search (of works dating from 1966 to January 2008) in which we examined a total of 8,861 abstracts in: PsycINFO (2,097), PubMed (1,403 abstracts), Embase (2,207), and the Cochrane Central Register of Controlled Trials (2,204). In order to identify unpublished studies, Dissertation Abstracts International (950 abstracts) was searched. We identified these abstracts by combining terms indicative of psychological treatment and depression. For this database, we also collected the primary studies from earlier meta-analyses of psychological treatments for depression (Cuijpers & Dekker, 2005) and checked the references of included studies. We retrieved a total of 857 papers and 33 dissertations for further study. These papers and dissertations were studied, and we selected the ones that met our inclusion criteria.

For the set of 115 controlled studies of psychotherapy, we included studies in which (1) efficacy of a psychological treatment (2) on adults (3) with a depressive disorder or an elevated level of depressive symptomatology (4) were compared to a control condition (waiting list, care-as-usual, pill placebo, psychological placebo), (5) in a randomized controlled trial. Psychological treatments were defined as interventions in which verbal communication between a therapist and a client was the core element, or in which a psychological treatment was written down in book format (guided self-help or bibliotherapy) while the client worked through it more or less independently, but with some kind of personal support from a therapist (by telephone, e-mail, or otherwise). We excluded studies on children and adolescents (below 18 years of age).

Studies in which the psychological intervention could not be discerned from other elements of the intervention were also excluded (managed care interventions and disease management programs), as were studies in which a standardized effect size could not be calculated (mostly because no test was performed in which the difference between experimental and control group was examined), and studies on inpatients. In some studies a combination of psychotherapy and placebo was compared to placebo only. These studies were excluded because a placebo may have an effect on depression in itself or may alter the effects of psychotherapy (Wampold, Minami, Tierney, Baskin, & Bhati, 2005). In the current review, we will not describe the results of these studies.

For the set of 115 studies, we excluded studies aimed at maintenance treatments and relapse prevention, and studies that included participants who were both anxious and depressed. Comorbid general medical or psychiatric disorders were not used as an exclusion criterion. No language restrictions were applied.

We defined evidence-based as those treatments that were examined in at least two randomized trials conducted by independent researchers in which the treatment was compared to an (untreated) control group (Chambless & Hollon, 1998). These treatments had to use the same manual and/or share a clear rationale about the causes of depression and therapeutical techniques of how to treat depressed persons. In this way, we were able to select 10 psychotherapies for adult depression that could be defined as evidence based.

Selection of Treatment Guidelines, Meta-Analyses, and Primary Studies on the Efficacy of Evidence-Based Treatments

After selecting the 10 evidence-based psychotherapies, we identified previous meta-analyses and primary studies assessing the efficacy of these treatments. In order to assess consensus panels' recommendations on these treatments, we selected five clinical guidelines for the treatment of depression.

Clinical guidelines: We will describe five international practice guidelines that reflect state-of-the-art recommendations for treating depression; that is, the guideline of the American Psychiatric Association (APA, 2000), the English guideline of the National Institute for Health and Clinical Excellence (NICE, 2007), the Australian and New Zealand guidelines developed by the Royal Australian and New Zealand College of Psychiatrists Clinical Guidelines Team for Depression (RANZCP, 2004), the Dutch guidelines (CBO/ Trimbos Institute, 2005, 2009) and the Swedish SBU guidelines developed by the Swedish Counsel on Technology Assessment in Health Care (Åsberg et al., 2004). Most practice guidelines are multidisciplinary, except for the APA guideline and the RANZCP that have been developed primarily by psychiatrists.

Meta-analyses: In order to identify earlier meta-analyses of the selected evidence-based psychotherapies, we conducted a systematic search in three bibliographical databases: PubMed, PsycINFO and Embase. We combined words indicative of psychotherapy and depression, and limited the resulting hits to meta-analyses. The deadline for the searches was May 1, 2008. Our searches resulted in a total of 1,092 abstracts (85 in PubMed, 658 in PsycINFO, and 349 in Embase).

Inclusion criteria were: (a) statistical meta-analyses (statistical integration of the results of primary studies), (b) of one of the selected evidence-based psychotherapies, (c) published in the English language, (d) published in 1995 or later. Meta-regression analyses, which were specifically aimed at examining the association between the efficacy of treatments and characteristics of the included studies, were excluded from this review, as were meta-analytic studies that did not specifiy the results for one of the evidence-based treatments. A total of 25 meta-analyses met our inclusion criteria. Basic characteristics and the main results of these studies are reported in Table 11.1.

TABLE 11.1 Selected Characteristics and Results of Meta-Analyses of Psychotherapy for Depression in Adults

1st Author, Year	Target Group	Treatment	Main Comparisons	N_{comp}	Main Outcomes
Barbato and D'Avanzo (2008)	Adults in general	MAR	MAR versus individual therapy	8	$d = 0.06$; 95% CI –0.29 ~ 0.41
Barbato and D'Avanzo (2006)	Adults in general	MAR	MAR versus individual therapy	6	$d = -0.12$; 95% CI –0.56 ~ 0.32
Bohlmeijer et al. (2003)	Older adults	LRT	LRT versus control	7	$d = 1.23$; 95% CI: 0.92 ~ 1.53
Chan (2006)	Adults in general	CBT	CBT versus control	21	$d = -1.09$; 95% CI: –1.41 ~ –0.78
			Pharmacotherapy versus CBT	7	$d = -0.13$; 95% CI: –0.28 ~ 0.01
			Pharmacotherapy versus combined	5	$d = -0.52$; 95% CI: –0.80 ~ –0.24
			Psychotherapy versus combined	5	$d = -0.42$; 95% CI: –0.69 ~ –0.14
Churchill (2001)	Adults in general	All psychotherapies	Psychotherapy versus control	22	$d = -0.90$; 95% CI: –1.21 ~ –0.60
			CBT versus IPT, DYN or NDST	13	$d = -0.27$; 95% CI: –0.59 ~ 0.06
			Individual CBT versus group CBT	8	$d = -0.33$; 95% CI: –0.58 ~ –0.08
			CBT versus control	20	$d = -1.00$; 95% CI: –1.35 ~ –0.64
			CBT versus psychodynamic therapy	6	OR = 2.11; 95% CI: 1.17 ~ 3.81
			CBT versus supportive therapy	9	$d = -0.45$; 95% CI: –0.89 ~ –0.01
Cuijpers et al. (2007b)	Adults in general	BAT	BAT versus control	10	$d = 0.87$; 95% CI: 0.60 ~ 1.15
			BAT versus other psychotherapy	18	$d = 0.12$; 95% CI: –0.05 ~ 0.29
Cuijpers et al. (2007b)	Adults in general	PST	PST versus control	13	$d = 0.83$; 95% CI: 0.45 ~ 1.21
Cuijpers (1998)	Adults in general	Psychoeducational CBT	Pychoeducational CBT versus control	14	$d = -0.65$; 95% CI: –0.44 ~ 0.85
De Maat et al. (2007)	Psychiatric outpatients	Psychotherapy versus combined	Psychotherapy versus combined	7	RR = 1.32; 95% CI: 1.12 ~ 1.56
De Maat et al. (2006)	Psychiatric outpatients	Psychotherapy versus pharmacotherapy	Psychotherapy versus pharmacotherapy	10	No significant difference
De Mello et al. (2005)	Adults in general	IPT	IPT versus placebo	9	WMD = –3.57; 95% CI: –5.9 ~ –1.16
Ekers et al. (2008)	Adults in general	Behavioral treatments	Behavior therapy versus control	12	SMD = 0.70; 95% CI: –1.00 ~ –0.39
			Behavior therapy versus CBT	12	SMD = 0.08; 95% CI: –0.14 ~ 0.30
Engels and Vermey (1997)	Older adults	All psychotherapies	Psychotherapy versus control	28	$d = -0.63$ (95% CI nr)
			CBT versus control	7	$d = -0.78$ (95% CI nr)

	outpatients	pharmacotherapy			
De Mello et al. (2005)	Adults in general	IPT	IPT versus placebo	9	WMD = –3.57; 95% CI: –5.9 ~ –1.16
Ekers et al. (2008)	Adults in general	Behavioral treatments	Behavior therapy versus control	12	SMD = 0.70; 95% CI: –1.00 ~ –0.39
			Behavior therapy versus CBT	12	SMD = 0.08; 95% CI: –0.14 ~ 0.30
Engels and Vermey (1997)	Older adults	All psychotherapies	Psychotherapy versus control	28	d = –0.63 (95% CI nr)
			CBT versus control	7	d = –0.78 (95% CI nr)
			Psychotherapy in MDD versus control	10	d = –0.86 (95% CI nr)
			Psychotherapy versus placebo	6	d = –0.28 (95% CI nr)
Friedman et al. (2004)	Adults in general	All psychotherapies	Pharmacotherapy versus combined	5	d = –0.34 (BDI); d = –0.18 (HDRS); 95% CI nr
Gaffan et al. (1995)	Adults in general	CBT	CBT versus waiting list	11	d = –0.89 (95% CI nr)
			CBT versus other psychotherapy	12	d = –0.34 (95% CI nr)
			CBT versus variant CBT	11	d = 0.03 (95% CI nr)
Gloaguen et al. (1998)	Adults in general	CBT	CBT versus control	20	d = –0.82; 95% CI: –0.83; –0.81
			CBT versus pharmacotherapy	17	d = –0.38; 95% CI: –0.39; –0.37
			CBT versus behavior therapy	13	d = –0.05; 95% CI: –0.08; –0.02
			CBT versus other psychotherapy	22	d = –0.24; 95% CI: –0.25; –0.23
Gregory et al. (2004)	Adults in general	Cognitive bibliotherapy	Cognitive bibliotherapy versus control	17	d = 0.77; 95% CI: 0.61 to 0.94
Koder et al. (1996)	Older adults	CBT	CBT versus control	7	Too few studies in reported comparisons
Leichsenring (2001)	Adults in general	DYN	DYN versus CBT	6	No significant difference
Malouff et al. (2007)	Adults in general	PST	PST	9	d = 0.50; 95% CI: 0.14, 0.87
McCusker et al. (1998)	Older adults	All psychotherapies	CBT versus control	5	d = –1.14; 95% CI: –1.67 ~ –0.60
			CBT versus DYN	5	d = –0.27; 95% CI: –0.80 ~ 0.25
Pampanolla et al. (2004)	Adults in general	Pharmacotherapy versus combined	Pharmacotherapy versus combined	16	OR = 1.86; 95% CI: 1.38 ~ 2.52
Spek et al. (2007)	Adults in general	Internet-based CBT	Internet-CBT versus control	5	d = 0.32; 95% CI: 0.08 ~ 0.57
Wampold et al. (2002)	Adults in general	CBT versus other psychotherapy	CBT versus other psychotherapy	9	d = 0.03; 95% CI: –0.15 ~ 0.20
			CBT versus placebo-therapy	11	d = 0.49; 95% CI: 0.28 ~ 0.69
			Psychotherapy versus control (clinician-rated)	26	d = –1.16; 95% CI: –1.00 ~ –1.32
K. C. Wilson et al. (2008)	Older adults	All psychotherapies	CBT versus waiting list control	5	WMD = –9.85, 95% CI –11.97 to –7.73
			Psychotherapy versus control (self-rated)	52	d = –0.83; 95% CI: –0.98 ~ –0.69

Note: Abbreviations (alphabetical): BAT: behavioral activation treatment; CBT: cognitive behavior therapy; CI: confidence interval; IPT: interpersonal psychotherapy; MDD: major depressive disorder; N_{comp}: number of comparisons; nr: not reported; OR: odds ratio; RR: relative risk; SMD: standardized mean difference; w/wo: with or without; WMD: weighted mean difference

Primary studies: We distinguished several different categories of primary studies.

Comparisons of psychotherapies to control groups: For each of the evidence-based psychotherapies, we selected the studies examining this psychotherapy from the database of 115 controlled studies of psychotherapy we described earlier (Cuijpers et al., 2008b; www.psychotherapyrcts.org). For each psychotherapy we conducted a separate meta-analysis of the randomized controlled studies examining its efficacy. The methods of these meta-analyses will be described later.

Comparisons of psychotherapies to pharmacotherapies: We have reviewed these studies in an earlier meta-analytic study (Cuijpers, van Straten, van Oppen, & Andersson, 2008). In this, we will summarize the results of this meta-analysis for each specific type of psychotherapy.

Comparisons of psychotherapies to other psychotherapies: We have reviewed these studies also in a separate publication (Cuijpers, van Straten, Andersson, et al., 2008). In the current chapter, we will also report in sum the results of this meta-analysis for each specific type of psychotherapy.

Comparisons of psychotherapies to combined treatments of that same psychotherapy and pharmacotherapy: These studies have also been summarized in an earlier meta-analysis (Cuijpers, van Straten, Warmerdam, & Andersson, 2008), and again we will summarize the results for each psychotherapy.

Comparisons of pharmacotherapy to combined treatments of psychotherapy and pharmacotherapy: These results have also been summarized in an earlier meta-analysis (Cuijpers, Dekker, Hollon, & Andersson, 2009), and we will summarize the results here.

Studies on long-term effects of psychotherapies: In order to examine the long-term efficacy of each of the psychotherapies, we used two different strategies. First, we summarized the results of a recent meta-analysis of studies examining the effects of CBT on relapse and recurrence (Vittengl, Clark, Dunn, & Jarrett, 2007). This is an excellent meta-analysis summarizing all available research in this area. However, this meta-analysis included only studies on CBT, and did not include other psychotherapies. There are some studies that have examined the efficacy of continued interpersonal therapy aimed at relapse prevention. We will review these studies in the paragraph on interpersonal psychotherapy (without conducting a meta-analysis, because there are only a limited number of studies available, and these studies use different designs and follow-up periods). For the other evidence-based psychotherapies we describe in this chapter, we will select the randomized controlled studies from our database that compared the efficacy of an evidence-based psychotherapy to a control condition at least three months after the end of the psychotherapy. Then we will compute effect sizes and conduct meta-analyses according to the methods described later for each psychotherapy (provided that there were sufficient effect sizes).

Analytic Strategies

Recommendations of clinical guidelines, results of earlier meta-analyses, and the results of long-term effects of psychotherapy, are briefly summarized and reviewed, without specific analytic strategies.

In order to integrate results of the post-test efficacy found in primary studies, we conducted a meta-analysis for each of the evidence-based psychotherapies. For these meta-analyses, we first calculated effect sizes (Cohen's *d*) for each study by subtracting (at post-test) the average score of the control group (M_c) from the average score of the experimental group (M_e) and dividing the result by the pooled standard deviations of the experimental and control group (SD_{ec}). For comparisons of two active treatments (such as psychotherapy versus pharmacotherapy or combined treatment), we calculated the effect sizes in the same way, except that the mean of the control condition is replaced by the mean of the alternative treatment. An effect

size of 0.5 thus indicates that the mean of the experimental group is half a standard deviation larger than the mean of the control group (or comparison treatment). Effect sizes of 0.56 and higher can be assumed to be large, while effect sizes of 0.33 to 0.55 are moderate, and lower effect sizes are small (Lipsey, 1990).

In the calculations of effect sizes, only those instruments were used that explicitly measured depression. If more than one depression measure was used, the mean of the effect sizes was calculated, so that each study (or contrast group) contributed with only one effect size. When means and standard deviations were not reported, we used other statistics (t-value, p-value) to calculate effect sizes.

To calculate pooled mean effect sizes, we used the computer program Comprehensive Meta-Analysis (version 2.2.021), developed for support in meta-analysis. Because we expected considerable heterogeneity, we conducted all analyses using the random effects model (J. P. T. Higgins & Green, 2005).

In order to assess heterogeneity we calculated the I^2-statistic, which is an indicator of heterogeneity in percentages (J. P. Higgins, Thompson, & Deeks, 2003). A value of 0% indicates no observed heterogeneity, and larger values show increasing heterogeneity, with 25% as low, 50% as moderate, and 75% as high heterogeneity. We also calculated the Q-statistic, but only report whether this was significant or not.

Because the effect size is difficult to interpret from a clinical perspective we also calculated the numbers-needed-to-be-treated (NNT). The NNT is the number of persons that have to be treated in order to generate one more positive outcome than in the control group (Kraemer & Kupfer, 2006). The NNT is easy to interpret from a clinical perspective, but has the disadvantage that it tends to become very large when the effect size is small. Therefore, we only report the NNTs for comparisons between psychotherapies and control groups, not for comparisons between different types of treatment (because these are usually very small and results in very high NNTs, which will probably only result in confusing figures). We used the formula provided by Kraemer and Kupfer (2006) to calculate the NNT.

For each evidence-based psychotherapy, publication bias was tested by inspecting the funnel plots of the meta-analyses, and by using Duval and Tweedie's (2000) trim and fill procedure, which yields an estimate of the effect size after the publication bias has been taken into account.

In order to examine whether basic characteristics of the studies were associated with the effect sizes, we conducted a series of subgroup analyses for each treatment. In these subgroup analyses, we divided the studies according to major characteristics of the studies. In order to assess these characteristics, we scored each study on the following characteristics: (a) recruitment method: open community recruitment, recruitment from clinical samples, and other; (b) target group: the study was conducted among adults or more specific target populations (such as older adults, student populations, patients with general medical disorders, women with postpartum depression, and other); (c) definition of depression: depressive disorder diagnosed with a formal diagnostic interview (such as the Composite International Diagnostic Interview, [CIDI]; Robins et al., 1988; or the Structured Clinical Interview for *DSM* Disorders, [SCID]; First, Spitzer, Gibbon, & Williams, 1995), other definition (usually depression defined as scoring above a cut-off score on a self-report scale, such as the Beck Depression Inventory); (d) format of the therapy: individual, group, or guided self-help; (e) type of control group: waiting list, care-as-usual, and other; and (f) the subgroup analyses were conducted according to the procedures implemented in Comprehensive Meta-Analysis version 2.2.021. In the subgroup analyses, we used mixed effects analyses that pooled studies within subgroups with the random effects model but tested for significant differences between subgroups with the fixed effects model.

We assessed quality of the included controlled studies using eight criteria. These

criteria were based on an authoritative review of empirically supported psychotherapies (Chambless & Hollon, 1998), and on the criteria proposed by the Cochrane Collaboration to assess the methodological validity of the study (J. P. T. Higgins & Green, 2005). The criteria were: (a) Participants met diagnostic criteria for a depressive disorder (as assessed with a personal diagnostic interview, such as the CIDI, SCID, or SADS, and using a diagnostic system such as the *DSM* or the Research Diagnostic Criteria); (b) The study referred to the use of a treatment manual (either a published manual, or a manual specifically designed for the study); (c) The therapists who conducted the therapy were trained for the specific therapy, either specifically for this study or as a general training; (d) Treatment integrity was checked during the study (by supervision of the therapists during treatment, by recording of treatment sessions, and/or by systematic screening of protocol adherence by a standardized measurement instrument); (e) Data were analyzed with intention-to-treat analyses, in which all persons who were randomized to the treatment and control conditions initially were included in the analyses; (f) The study has a minimal level of statistical power to find significant effects of the treatment, and included 50 or more persons in the comparison between treatment and control group (this allows the study to find standardized effect sizes of 0.80 and larger, assuming a statistical power of 0.80 and alpha of 0.05; calculations in STATA); (g) The study reported that randomization was conducted by an independent (third) party (this variable is positive if an independent person did the randomization, when a computer program was used to assign patients to conditions, or when sealed envelopes were used); and (h) Assessors of outcome were blinded and did not know to which condition the respondents were assigned to (this was only coded when the effect sizes were based on interviewer-based depression ratings; when only self-reports were used, this was not coded).

For each evidence-based treatment, we assessed how many studies met all eight quality criteria, and we examined with a subgroup analysis whether these high-quality studies differed significantly from other studies. Study quality was considered to be especially important because in an earlier meta-analysis we found that the effect sizes found in high-quality studies was lower than in other studies.

COGNITIVE BEHAVIOR THERAPY

There are several different types of CBT. All of these therapies share a focus on the impact a patient's present dysfunctional thoughts have on current behavior and future functioning. CBT is aimed at teaching patients to evaluate, challenge, and modify their dysfunctional beliefs (cognitive restructuring), with the further aim being to change behavior. In this form of treatment the therapist mostly emphasizes homework assignments and outside-of-session activities. Therapists exert an active influence over therapeutic interactions and topics of discussion, use a psychoeducational approach, and teach patients new ways of coping with stressful situations. The CBT is by far the best-studied psychotherapy for depression. As we will see later, of the 115 studies that have compared psychotherapy to untreated control groups, 61% (70) have examined CBT.

When we look in more detail in what way CBT is conducted and to the efficacy research in this area, we can distinguish four major subtypes of CBT. These include CBT according to the manual from Beck and colleagues (Beck, Rush, Shaw, & Emery, 1979); the psychoeducational "Coping with Depression" course; cognitive bibliotherapy; and a broader, less specific rest category of CBT. In this last category, other forms of CBT are described that meet our earlier definition of CBT, but differ in their exact treatment format.

The first and most important type of CBT for depression was developed and manualized by Beck and colleagues (1979). There is no other

type of CBT that has been examined in as many randomized controlled trials. It combines a behavioral activation approach with an approach aimed at cognitive restructuring. The behavioral activation approach (also called "activity scheduling") consists of a systematic registration of pleasant activities and the increase of positive interactions between a person and his or her environment. As we will see later, behavioral activation has also been examined as a separate treatment for adult depression, and has been compared in several studies with the cognitive restructuring part of Beck's CBT and with the full CBT package.

The second type of CBT is the "Coping with Depression" course (Lewinsohn, Antonucci, Breckenridge, & Teri, 1984). This intervention is a psychoeducational intervention based on social learning theory and is highly structured. It teaches several mood management skills to its participants, including cognitive restructuring, activity scheduling, and social skills. Participants are more students than patients, and the intervention is led by course leaders instead of therapists. Although originally developed for use in a group format, it can also be applied individually or as guided self-help intervention.

The third type of CBT we distinguish here is cognitive bibliotherapy. In the studies on cognitive bibliotherapy, participants receive a copy of the book *Feeling Good* by David Burns (1980). This book is based on Beck's cognitive therapy and is a true self-help book in the sense that it explains the principles of cognitive therapy very carefully to the reader and teaches how to apply these principles. In the studies on this type of therapy, the participant receives a copy of this book and is called every week by a researcher or therapist very briefly (10 to 20 minutes per call) in order to answer any questions about the book. Most of the studies examining cognitive bibliotherapy we found were conducted by the same research group (Dr. Scogin and colleagues). However, we also found one study that was conducted by an independent group of researchers (Landreville & Bissonnette, 1997). Because our definition of evidence-based psychotherapy required research from at least two independent research groups, cognitive bibliotherapy met this criterion.

The fourth category of CBT is a rest category. In these interventions cognitive restructuring is an important component, but it may include other components such as behavioral activation, social skills training, relaxation, or coping skills.

In this chapter, we will first discuss earlier meta-analyses examining the efficacy of CBT and the advices given in clinical practice guidelines on the use of CBT. Then we will discuss the effect studies that have examined CBT and have compared it to nontreated control groups, pharmacotherapy, and combined treatments. Finally, we will discuss research on the long-term effects of CBT.

Earlier Meta-Analyses on CBT

In our systematic search for earlier meta-analyses of psychotherapies for adult depression, we found 17 meta-analyses that examined the efficacy of CBT (Table 11.1). These meta-analyses have shown very clearly that CBT is effective compared to untreated controls (Chan, 2006; Churchill et al., 2001; Gaffan, Tsaousis, & Kemp-Wheeler, 1995; Gloaguen, Cottraux, Cucherat, & Blackburn, 1998; Wampold, Minami, Baskin, & Tierney, 2002). Most of these meta-analyses are not limited to one of the subtypes of CBT, but typically include studies on CBT in general. One exception is the meta-analysis of the "Coping with Depression" course, which found that this intervention is indeed effective in reducing depression (Cuijpers, 1998). Another more recent meta-analysis examined the efficacy of cognitive bibliotherapy (Gregory, Canning, Lee, & Wise, 2004), but used a somewhat broader definition of cognitive bibliotherapy as we did. For example, they also included studies on psychoeducational treatments, such as the "Coping with Depression" course.

But they did find that this group of cognitive behavioral interventions had large effects on depression, compared to control groups. One other recent meta-analysis examined whether CBT interventions conducted through the Internet are effective in the treatment of depression and anxiety disorders (Spek et al., 2007). This study found that CBT interventions conducted through the Internet have large effects, provided that some sort of professional support was given. Unsupported interventions were also found to be effective, but with much smaller effect sizes.

Another group of meta-analyses has examined the effects of CBT in older adults (Engels & Vermey, 1997; Koder, Brodaty, & Anstey, 1996; McCusker, Cole, Keller, Bellavance, & Berard, 1998; K. C. Wilson, Mottram, & Vassilas, 2008). Although some of these meta-analyses have included only a small part of the available research in this area, they all find that CBT has large effects on depression in older adults.

Several other meta-analyses have compared the efficacy of CBT with that of other psychotherapies. In an older meta-analysis, some indications were found that cognitive behavior therapy was more efficacious than other therapies (Gloaguen et al., 1998). However, this was not confirmed in a meta-analysis of the same set of studies in which cognitive behavior therapy was compared to other high-quality bona fide therapies, which were not explicitly designed as a control condition (Wampold et al., 2002). Another early meta-analysis found indications that the superiority of cognitive behavior therapies over other therapies could be explained by the effects of researcher allegiance (Gaffan et al., 1995). A meta-analysis by De Mello and colleagues (De Mello, de Jesus Mari, Bacaltchuk, Verdeli, & Neugebauer, 2005) examined the comparative effects of interpersonal psychotherapy and cognitive behavior therapy, and concluded that interpersonal psychotherapy was somewhat more efficacious than cognitive behavior therapy. A further meta-analysis examined whether psychodynamic psychotherapies and cognitive behavior therapy differ significantly from each other (Leichsenring, 2001). No indications were found that they do indeed differ from each other. However, another meta-analysis comparing cognitive behavior therapies to psychodynamic therapies (Churchill et al., 2001), did find that cognitive behavior therapies were more efficacious, although the number of included studies was relatively small. In the same study, it was found that cognitive and behavioral treatments were more efficacious than nondirective supportive therapies. Two earlier meta-analyses (Cuijpers, van Straten, & Warmerdam, 2007b; Ekers, Richards, & Gilbody, 2008) compared the efficacy of behavioral activation therapy and cognitive behavior therapy, and neither study detected significant differences. One meta-analysis grouped psychotherapies for older adults into two broad categories, cognitive behavior therapies on the one hand and psychodynamic and nondirective supportive therapies on the other hand (McCusker et al., 1998). However, they found no significant difference between the two groups. This may be caused by the fact that they included only five studies.

The relative efficacy of CBT, pharmacotherapy, and combined treatments of CBT and pharmacotherapy has been examined in several other meta-analyses. One meta-analysis examining the relative efficacy of CBT and pharmacotherapy did not find significant differences between the two treatments (Chan, 2006), although this meta-analysis has included only a limited selection of currently available studies and may not have sufficient power to detect small differences (see next paragraph). However, one earlier meta-analysis found evidence that CBT is more efficacious than pharmacotherapy (Gloaguen et al., 1998), but this meta-analysis also included only a limited number of the currently available studies. The meta-analyses examining the relative efficacy of psychotherapies and combined treatments have not differentiated between CBT and other psychotherapies and do not give specific

information on CBT (De Maat, Dekker, Schoevers, & De Jonghe, 2006, 2007; Friedman et al., 2004; Pampanolla, Bollini, Tibaldi, Kupelnick, & Munizza, 2004).

Cognitive Behavior Therapy in Clinical Guidelines

Overall, practice guidelines emphasize shared features of effective therapy (e.g., therapeutic alliance, motivation, hopeful expectancy). Most guidelines differentiate between treatment strategies, depending on the severity of depression; that is, mild, moderate, and severe depression with and without psychotic features. All guidelines recommend considering the combination of psychotherapy with antidepressants for the more severe cases of depression. No guideline recommends psychotherapy for depressed patients with psychotic features, since no studies have been conducted yet on the effects of psychotherapy as a single treatment for this subgroup of depressed patients. In addition, some guidelines differentiate in recommendations according to the type of care; that is, primary and secondary care. Overall, in all current practice guidelines CBT has been recommended as the psychotherapeutic treatment of choice.

For mild depression in primary care most guidelines recommend six to eight sessions of brief CBT, but all guidelines address considering alternative first step strategies as well; that is, psychoeducation, exercise, guided self-help computerized CBT (CBO/Trimbos Institute, 2009; NICE, 2004), supportive clinical care (RANZCP, 2004), and Internet treatment (SBU). In contrast, RANZCP states for mild depression that no treatment, including CBT, is more effective than supportive clinical care supported by psychoeducation and supplemented by teaching problem-solving skills. Although the APA concludes that there is no evidence that for mild to moderate depressed patients the combination of psychotherapy and antidepressants is superior to either treatment alone, they recommend a combined treatment with CBT and antidepressants for this group, especially in patients with psychosocial problems, interpersonal conflicts, pregnancy/lactation or wish to become pregnant, and patients with comorbid personality disorders.

For moderate to severe depressed patients in primary care, NICE recommends antidepressants as first treatment of choice. Antidepressant treatment as first treatment of choice is not completely shared by the RANZCP. They state that CBT is equally effective compared to antidepressant medication. However, all guidelines recommend CBT in case a psychotherapy will be started.

In severely depressed patients, all guidelines recommend combining antidepressants with CBT. In secondary care, NICE and APA (regardless of type of care) give special recommendations for patients who do not respond to antidepressants (often indicated as treatment resistant) and other complex cases. All guidelines recommend considering CBT for patients who do not respond or do not fully respond to antidepressants. In addition, NICE advises to start CBT in patients that relapsed either during use of antidepressants or after finishing antidepressants. For severe depression all guidelines recommend initial treatment with antidepressants. Although, some guidelines (i.e., Dutch guideline) underscore that recent studies indicate that CBT and antidepressants are equally effective. In addition, they address that the combination of CBT (and IPT to a lesser extent) with antidepressants are more effective in cases with severe depression.

The NICE, APA, and Dutch guidelines differentiate in recommendations on course of depression as well by recommending specific treatment along with recurrence of depression. All guidelines stress the importance of reducing relapse in depression by providing psychotherapy. They recommend that acute phase treatment with antidepressants might subsequently be followed by CBT for reducing residual symptoms or to decrease risk of relapse. This sequential approach, that is, augmenting psychotherapy in the continuation

and maintenance phase after remission on antidepressants, has been mentioned in most guidelines (for example, specific CBT programs, i.e., Preventive Cognitive Therapy and Mindfulness Based Cognitive Therapy). In addition, CBT in the acute phase is in most guidelines mentioned as first choice of treatment especially in recurrently depressed patients. For recurrently depressed patients, continuation or maintenance CBT after remission is advised by NICE, APA, and the Dutch guidelines.

For chronic depression all guidelines recommend combining antidepressants with CBT. Some guidelines point at considering a specific psychotherapeutic intervention for this group, that is, Cognitive Behavioral Analysis System of Psychotherapy (CBASP). For dysthymic patients the Swedish guideline recommends antidepressant treatment as first choice instead of psychotherapy.

EFFICACY OF CBT

CBT Versus Control Conditions

Cognitive behavior therapy could be compared to a control group in 70 studies, in which 91 comparisons were made between a CBT condition and a control group (in 16 studies two or more types of CBT were compared to a control group). The total number of study participants in these comparisons was 4,257 (2,233 in the CBT groups and 2,024 in the control groups).

The mean effect size of the 91 comparisons, in which the difference between CBT and control groups at post-test was contrasted, was 0.67 (95% CI: 0.57 ~ 0.78). This indicates a large effect of CBT, corresponding with a NNT of 2.75. Heterogeneity was moderate to high ($I^2 = 59.88$). Results of the analyses are summarized in Table 11.2.

Several effect sizes were very large (> 2.0) and one was very low (–0.77, the only negative effect size, indicating that participants in the control group improved more than those receiving CBT). After removal of these possible outliers, we found that the effect size was a little smaller ($d = 0.64$; 95% CI: 0.54 ~ 0.74), heterogeneity dropped somewhat ($I^2 = 52.51$) and the associated NNT was 2.86.

Our analyses included studies in which more than one CBT was compared to a control group, which means that multiple comparisons from one study were included in the same analysis. These multiple comparisons are not independent of each other, however, possibly resulting in an artificial reduction of heterogeneity and a bias in the overall mean effect size. We conducted additional analyses as a consequence, in which we included only one comparison per study (Table 11.2). Only the comparison with the largest effect size was included first, followed by another analysis including only the smallest effect size. As can be seen from Table 11.2, results did not differ very much from those in which all comparisons were included.

Effect sizes were calculated using different measurement instruments. When we limited the effect sizes to those found for the BDI, we found a somewhat higher effect size ($d = 0.79$; 95% CI: 0.65 ~ 0.93), with moderate to high heterogeneity ($I^2 = 64.73$) and an NNT of 2.36. The mean effect size based on the Hamilton Depression Rating Scale resulted in a comparable effect size ($d = 0.77$; 95% CI: 0.59 ~ 0.94; Table 11.2).

Both the funnel plot and Duval and Tweedie's trim and fill procedure suggested that there was considerable publication bias. After adjustment for possible publication bias, the mean effect size decreased from 0.67 to 0.41 (95% CI: 0.29 ~ 0.52; number of trimmed studies: 30).

We conducted a series of subgroup analyses using the characteristics of the studies as described in the Methods section (recruitment method, target group, definition of depression, treatment format, type of control group). We also conducted a subgroup analysis in which we examined whether the efficacy of the four different subtypes of CBT differed significantly from each other. Results of these analyses are presented in Table 11.2.

TABLE 11.2 Efficacy of CBT for Adult Depression Compared to Control Groups: Overall Analyses and Subgroup Analyses

	N_{comp}	D	95% CI	Z	I^{2a}	NNT	P^b
Main analyses							
▪ CBT versus (untreated) controls	91	0.67	0.57 ~ 0.78	12.52****	59.88****	2.75	
▪ 4 outliers removed[c]	87	0.64	0.54 ~ 0.74	12.86****	52.51****	2.86	
▪ One effect size per study (lowest)	70	0.57	0.46 ~ 0.68	10.21****	58.69****	3.18	
▪ One effect size per study (highest)	70	0.66	0.55 ~ 0.78	11.10****	62.82****	2.78	
▪ BDI only	69	0.79	0.65 ~ 0.93	11.13****	64.73****	2.36	
▪ HAM-D only	36	0.77	0.59 ~ 0.94	8.52****	59.36****	2.42	
Publication bias							
▪ After correction for publication bias	91	0.41	0.29 ~ 0.52			4.39	
Subgroup analyses							0.000
Subtypes							
▪ CBT according to Beck et al. (1979)	23	0.82	0.59 ~ 1.05	7.04****	58.90****	2.28	
▪ Cognitive bibliotherapy	8	1.05	0.71 ~ 1.39	6.00****	33.74 ns	1.85	
▪ Coping with depression course	13	0.27	0.16 ~ 0.39	4.61****	0	6.58	
▪ Other CBT	47	0.69	0.54 ~ 0.84	8.85****	59.12****	2.67	
							0.000
Recruitment							
▪ Community	58	0.86	0.70 ~ 1.01	10.79****	60.37****	2.19	
▪ Clinical samples	18	0.56	0.38 ~ 0.74	6.06****	39.52**	3.25	
▪ Other recruitment	15	0.30	0.18 ~ 0.41	4.96****	12.19 ns	5.95	
							0.309
Target group							
▪ Adults in general	55	0.63	0.51 ~ 0.76	9.69****	55.93****	2.91	
▪ Specific target group	36	0.75	0.57 ~ 0.94	7.94****	65.41****	2.48	
							0.032
Specific types of depressive disorders							
▪ Diagnosed mood disorder	48	0.57	0.42 ~ 0.71	7.45****	64.27****	3.18	
▪ Other definition	43	0.79	0.65 ~ 0.94	10.75****	49.88****	2.36	
							0.006
Format[d]							
▪ Individual	39	0.66	0.51 ~ 0.82	8.44****	51.80****	2.78	
▪ Group	34	0.64	0.45 ~ 0.82	6.78****	65.96****	2.86	
▪ Guided self-help	17	0.83	0.57 ~ 1.08	6.39****	58.22***	2.26	
							0.000
Control group							
▪ Waiting list	61	0.88	0.74 ~ 1.03	11.95****	53.06****	2.15	
▪ Care-as-usual	19	0.38	0.22 ~ 0.53	4.86****	46.52**	4.72	
▪ Other	11	0.38	0.21 ~ 0.55	4.43****	29.28 ns	4.72	
							0.000
Study quality							
▪ High quality	8	0.22	0.09 ~ 0.34	3.41***	1.98 ns	8.06	
▪ Other studies	83	0.74	0.63 ~ 0.85	12.71****	55.65****	2.50	

Notes: *: $p < 0.1$; **: $p < 0.05$; ***: $p < 0.01$; ****: $p < 0.001$; ns: not significant

Abbreviations: CI: confidence intervals; N_{comp}: number of comparisons; NNT: numbers-needed-to-treat

[a] The p-values in this column indicate whether the Q-statistic is significant (the I^2 statistics do not include a test of significance).

[b] The p-values in this column indicate whether the difference between the effect sizes in the subgroups is significant.

[c] Three with very large effect sizes (> 2.0; Ayen & Hautzinger, 2004; Pecheur, 1980, Taylor & Marshall, 1977), and one with a large negative effect size (Klein et al., 1985).

[d] In one study (Miranda et al., 2003), participants could choose between an individual or group treatment. This study was removed from these analyses.

As can be seen from this Table, Beck's CBT, cognitive bibliotherapy, and the rest category of CBT did not differ very much from each other in terms of effect sizes. However, the "Coping with Depression" course seemed to be somewhat less effective than the other three subtypes. This may be related to the fact that several of the larger studies examining the "Coping with Depression" course were conducted with complex populations, such as low-income women from minority groups (Miranda et al., 2003), older American Indians with chronic diseases (Manson & Brenneman, 1995), and populations who did not seek treatment for any problems (Dowrick et al., 2000). The fact that the "Coping with Depression" course is a flexible treatment that can easily be adapted for different populations may have led researchers to use this intervention for complex target groups, which in turn resulted in a lower mean effect size.

We also found that effect sizes found in depressed populations recruited from the community resulted in larger effect sizes than in clinical populations, and studies using other recruitment methods (such as systematic screening). Studies in which participants had to meet diagnostic criteria for a mood disorder has significantly lower effect sizes than studies in which other criteria for depression were used (usually scoring above a cut-off on a self-report scale). Unexpectedly, we found that studies using a guided self-help format had larger effect sizes than studies in which an individual or a group format was used. Waiting list control groups resulted in the largest effect size, followed by care-as-usual control groups. Other control groups (usually pill placebo or psychological placebo) resulted in even smaller effect sizes. The other subgroup analysis (examining the difference between adults in general as a target group versus more specific target groups) did not indicate that these groups of studies differed significantly from each other.

CBT Versus Other Treatments and as Part of Combination Treatments

The CBT could be compared to other psychotherapies in 38 studies (with 56 comparisons between CBT and another psychotherapy). The mean effect size indicating the difference between CBT and other psychotherapies at post-test was a nonsignificant 0.03 (95% CI: $-0.04 \sim 0.11$), with zero heterogeneity (Table 11.3). This suggests that there is no significant difference between the efficacy of CBT and other psychotherapies. We have explored this result in an earlier paper (Cuijpers, van Straten, Andersson, et al., 2008) and refer the interested reader to this paper for further information. In this chapter, we also report subgroup analyses in which we examined whether major characteristics of the studies were related to the effect sizes. None of these analyses resulted in a significant difference between subgroups (Cuijpers, van Straten, Andersson, et al., 2008).

We examined whether we found a significant difference between the effect sizes found for different subtypes of CBT. As can be seen in Table 11.3, however, we found no indication that this was the case. We also examined whether CBT was more or less effective than other evidence-based therapies for depression. In these analyses, we compared the full category of CBT to each of the other evidence-based therapies for depression. We found no indication that this was the case (Table 11.3).

We could directly compare efficacy of CBT with pharmacotherapy in 15 studies. The effect size indicating the difference between these two treatment modalities at post-test was 0.03 (95% CI: $-0.11 \sim 0.17$), which was not significant. Heterogeneity was nonsignificant and low ($I^2 = 26.91$). This suggests that there is no significant difference between the efficacies of CBT and pharmacotherapy. In a more elaborate meta-analysis examining the comparate efficacy of psychotherapy and pharmacotherapy for adult depression (Cuijpers, van Straten, van Oppen, et al., 2008), we found that psychotherapies

TABLE 11.3 Efficacy of Cognitive Behavior Therapy Compared to Other Psychotherapies, Pharmacotherapy, and Combined Therapies

	N_{comp}	D	95% CI	Z	I^{2a}	P
All CBT versus all other psychotherapies	56	0.03	–0.04 ~ 0.11	0.86 ns	0	
Subtypes of CBT vs all other psychotherapies						0.511
– Beck's CBT versus all other psychotherapies	34	–0.02	–0.13 ~ 0.09	–0.41 ns	0 ns	
– CWD versus all other psychotherapies	3	0.10	–0.09 ~ 0.29	1.01 ns	0 ns	
– Cognitive bibliotherapy versus all other psychotherapies	1	0.17	–0.71 ~ 1.05	0.38 ns	0 ns	
– Other CBT versus all other psychotherapies	18	0.11	–0.06 ~ 0.28	1.26 ns	24.71 ns	
CBT versus specific other psychotherapies						0.432
– CBT versus behavioral activation therapy	11	–0.08	–0.29 ~ 0.13	–0.78 ns	0	
– CBT versus psychodynamic treatment	7	0.15	–0.08 ~ 0.38	1.31 ns	0	
– CBT versus interpersonal psychotherapy	5	–0.12	–0.33 ~ 0.09	–1.13 ns	0	
– CBT versus supportive therapies	18	0.06	–0.10 ~ 0.22	0.76 ns	29.35 ns	
– CBT versus problem-solving therapy	2	0.18	–0.07 ~ 0.43	1.43 ns	0	
– CBT versus social skills training	3	0.06	–0.45 ~ 0.57	0.23 ns	0	
– CBT versus other psychotherapies	10	0.07	–0.17 ~ 0.31	0.60 ns	0	
CBT versus pharmacotherapy	15	0.03	–0.11 ~ 0.17	0.43	26.91 ns	
CBT versus different types of pharmacotherapy						0.070
– CBT versus SSRI	5	–0.12	–0.30 ~ 0.06	–1.29 ns	0	
– CBT versus TCA	7	0.19	–0.01 ~ 0.40	1.84*	22.96 ns	
– CBT versus other medications	3	–0.08	–0.38 ~ 0.22	–0.53 ns	0.75	
CBT versus combined therapy	8	0.15	–0.06 ~ 0.37	1.39 ns	0	
Pharmacotherapy versus combined therapy	6	0.27	0.04 ~ 0.49	2.34**	0	

Notes: *: $p < 0.1$; **: $p < 0.05$; ns: not significant

[a] A positive d indicates that CBT is more effective than the alternative treatment; but when CBT is compared to combined treatments, a positive d indicates that the combined treatment is more effective.

were less efficacious than pharmacotherapy in people with dysthymia ($d = -0.28$; 95% CI: –0.47 ~ –0.10). However, only one of the studies involved examined CBT.

In that more elaborate meta-analysis, we also found that in patients with major depression, treatments with SSRIs were significantly more effective than psychological treatments, while treatment with other antidepressants did not differ significantly. We examined this in the studies in which CBT was used as psychological treatment. As can be seen in Table 11.3, there was a trend ($p < 0.1$) indicating that the differences between CBT and psychotherapy differed depending on the type of pharmacotherapy. There was no significant difference between SSRIs and CBT, but there was a trend ($p < 0.1$) indicating that CBT was more effective than TCAs.

In our earlier meta-analysis examining the difference between psychotherapies and pharmacotherapy, we found no other significant difference between subgroups of studies. However, we did find that dropout rates were smaller in psychological treatments, compared to pharmacological treatments (OR = 0.66; 95% CI: 0.47 ~ 0.92).

We could compare CBT to a combined treatment of CBT and pharmacotherapy directly in eight studies. A meta-analysis of these studies indicated that the effect size of the combined treatment was somewhat higher than that

of CBT alone, but this was not significant, possibly due to a lack of statistical power. Heterogeneity was zero in these analyses.

We compared pharmacotherapy to the combination of CBT and pharmacotherapy in six studies and found that the combined treatment was significantly more efficacious than pharmacotherapy alone ($d = 0.27$; 95% CI: 0.04 ~ 0.49), with zero heterogeneity. The NNT associated with this effect size is 6.58.

Long-Term Effects of CBT

The long-term efficacy of CBT has been described in a meta-analysis of 28 studies including 1,880 adult depressed persons (Vittengl et al., 2007). In this meta-analysis, the authors distinguished between acute-phase CBT (which is aimed at reducing depressive symptoms and producing initial remission in persons with a depressive disorder), and continuation-phase CBT (which is aimed at sustaining remission and reducing the probability of relapse and recurrence). The authors found that a considerable number of responders to acute-phase CBT relapse after discontinuation (29% within 1 year and 54% within 2 years). These rates are comparable to those of other psychotherapies but lower than those associated with relapse rates in pharmacotherapy (Vittengl et al., 2007). This meta-analysis also found evidence that among acute-phase responders, continuation-phase CBT reduced relapse rates compared with assessment only at the end of the continuation treatment (21% reduction) and at follow-up (29% reduction). This meta-analysis had several important limitations, however, limiting the strength of the evidence found. One important limitation was that only a handful of studies was available for each comparison. Furthermore, in the studies in which no continuation-phase treatment was given, it is not clear whether respondents had any type of help for their depression. Because of these limitations the results should be interpreted with caution.

Conclusion

With more than 100 randomized controlled and comparative trials examining its efficacy and 17 meta-analyses, CBT is by far the best studied psychotherapy for adult depression. This large body of research has shown that CBT is an efficacious treatment for depressed adults. It was found to be efficacious in adults in general, but also in more specific target groups, such as older adults, women with postpartum depression, and depressed patients with general medical disorders. It can be effectively delivered in individual, group, and guided self-help formats, and can also be effectively applied through computers and the Internet. Furthermore, there is increasing evidence that in the long-term, CBT can result in reduced relapse rates. It should not come as a surprise, therefore, that CBT has found its way to all treatment guidelines for adult depression and is considered to be a first-line therapy for depression by virtually all clinicians.

There is, however, some reason to be cautious about these results of CBT. The best studies in the field, which meet all quality criteria we defined for these studies, find considerably smaller effect sizes than other studies (such as the NIMH trial; Elkin et al., 1989). In a separate paper, we explored this finding for all psychotherapies and found that it cannot be explained, for example, by the use of waiting list control groups, which typically result in higher effect sizes than care-as-usual or placebo control groups. Probably this difference between high-quality and other studies does indeed represent a true difference. Another concern is that we found strong indications for publication bias, which may have resulted in an overestimation of the effect sizes.

We distinguished different subtypes of CBT, with the CBT using Beck's manual being the best studied, with good effect sizes; however, cognitive bibliotherapy was also found to be efficacious. The psychoeducational "Coping with Depression" course, however, was somewhat less efficacious than other subtypes of CBT. As indicated earlier, this should be

considered cautiously, because an advantage of this course is that it can be adapted very well for complex populations. Many of the studies examining it have focused on these complex populations, and it should not come as a surprise that the efficacy is somewhat smaller than that of other subtypes of CBT.

BEHAVIORAL ACTIVATION TREATMENT

A psychological treatment of depression that is closely related with CBT and can be seen as a member of a broader cognitive behavioral family of psychotherapies for depression is behavioral activation treatment (BAT). Behavioral activation treatment is one of the components of many CBT treatments, including Beck's CBT, cognitive bibliotherapy, and the "Coping with Depression" course. But it was originally developed as a separate treatment, and is still used as an independent form of treatment of depression. Based on the strong association between pleasant interactions between a person and his or her environment, this treatment was developed in the 1970s (Lewinsohn, Biglan, & Zeiss, 1976). In this treatment, patients learn techniques to monitor their mood and daily activities, and to see the connection between these. Then the patients learn how to develop a plan to increase the number of pleasant activities and to increase positive interactions with their environment. In this approach, specific attention is paid to social skills and interactions with other people. More recently, this approach has been further developed and examined by Jacobson et al. (1996) and by Dimidjian and colleagues (Dimidjian et al., 2006; Dobson et al., 2008). A manual has also been published (Martell, Addis, & Jacobson, 2001).

Clinical Guidelines and Earlier Meta-Analyses

The BAT has been examined in two earlier meta-analyses (Cuijpers et al., 2007a; Ekers et al., 2008). The first one (Cuijpers et al., 2007a) was conducted by our group and contains many of the studies that will be analyzed later. The other meta-analysis is also based on almost the same group of studies (although they also included some studies that are based on the "Coping with Depression" course; Ekers et al., 2008). Both meta-analyses concluded that BAT is effective in the treatment of depression and has large effects compared to untreated controls. Both of them also find no significant difference between BAT and CBT, and one of them evidence that BAT is more efficacious than supportive therapies and brief therapies (Ekers et al., 2008). No evidence was found that the effects had decreased at 12-month follow-up or that there were differences between BAT and CBT at follow-up.

The APA regards BAT as effective as CBT and antidepressants, but points out that there are a small amount of BAT trials with random assignment and adequate control arms. The Swedish guideline and the update of the Dutch guidelines recommend behavioral activation as one of the treatments of choice, based on recent evidence.

Efficacy

We could compare BAT to a control group in 11 studies. The total number of respondents in these comparisons was 279 (136 in the BAT groups and 143 in the control groups). The mean effect size was 0.88 (95% CI: 0.48 ~ 1.28), which corresponds with a NNT of 2.15, indicating a large effect of BAT (Table 11.4). Heterogeneity was moderate ($I^2 = 55.25$). One study (P. H. Wilson, Goldin, & Charbonneau, 1983) had a very large effect size and was possibly an outlier. After removal of this study, the resulting effect size was somewhat lower, and heterogeneity dropped to a low to moderate level (Table 11.4). When we limited the effect sizes to those found for the BDI we also found a somewhat lower effect size ($d = 0.66$; 95% CI: 0.24 ~ 1.08; NNT = 2.78), with low to moderate heterogeneity. The mean effect size based on the Hamilton

TABLE 11.4 Efficacy of Behavioral Activation Therapy Compared to Control Groups, Other Psychotherapies, Pharmacotherapy, and Combined Therapies

	N_{comp}	D	95% CI	Z	I^{2a}	NNT	P
Behavioral activation versus control groups							
– All studies	11	0.88	0.48 ~ 1.28	4.31****	55.25**	2.15	
– One possible outlier removed	10	0.75	0.39 ~ 1.10	4.11****	41.72*	2.48	
– BDI only	7	0.66	0.24 ~ 1.08	3.09***	45.62*	2.78	
– HAM-D only	4	0.72	0.14 ~ 1.31	2.42**	60.87*	2.56	
Publication bias							
▪ After correction for publication bias	11	0.50	0.05 ~ 0.94			3.62	
Subgroup analyses[b, c]							
Target group							0.585
▪ Adults in general	7	0.81	0.26 ~ 1.36	2.89***	63.25**	2.30	
▪ Specific target group	4	1.02	0.51 ~ 1.53	3.91****	19.31 ns	1.89	
Specific types of depressive disorders							0.826
▪ Diagnosed mood disorder	3	0.82	0.05 ~ 1.60	2.08**	72.50**	2.28	
▪ Other definition	8	0.93	0.43 ~ 1.42	3.67****	48.45*	2.04	
Format							0.673
▪ Individual	8	0.95	0.49 ~ 1.40	4.05****	55.75**	2.01	
▪ Group	3	0.71	–0.31 ~ 1.72	1.36 ns	68.72**	2.60	
Control group							0.045
▪ Waiting list	8	1.08	0.54 ~ 1.61	3.96****	55.48**	1.81	
▪ Other	3	0.42	0.06 ~ 0.78	2.29**	0	4.27	
Behavioral activation versus other psychotherapies							
▪ All studies	21	0.14	–0.02 ~ 0.30	1.71*	0		
▪ BAT versus CBT	11	0.08	0.13 ~ –0.29	0.78 ns	0		
▪ BAT versus supportive psychotherapy	4	0.38	–0.07 ~ 0.83	1.66*	10.09		
▪ BAT versus psychodynamic psychotherapy	3	0.21	–0.19 ~ 0.62	1.03	0		

Notes: *: $p < 0.1$; **: $p < 0.05$; ***: $p < 0.01$; ****: $p < 0.001$; ns: not significant

[a] A positive d indicates that BAT is more effective than the alternative treatment; but when BAT is compared to combined treatments, a positive d indicates that the combined treatment is more effective.

[b] All studies, except two (Comas-Diaz, 1981; Teri et al., 1997) recruited participants through community recruitment; therefore, we did not conduct subgroup analyses with different recruitment methods.

[c] Only one study met all quality criteria; therefore, we did not conduct subgroup analyses examining differences between high-quality and other studies.

Depression Rating scale resulted in a comparable effect size (Table 11.4).

Both the funnel plot and Duval and Tweedie's trim and fill procedure suggested that there was considerable publication bias. After adjustment for possible publication bias, the mean effect size decreased from 0.88 to 0.50 (95% CI: 0.05 ~ 0.94; number of trimmed studies: 4; NNT = 3.62).

We conducted a series of subgroup analyses using characteristics of the studies as described in the Methods section (target group, definition of depression, treatment format, type of control group). We did not conduct subgroup analyses examining different recruitment methods, because most studies recruited participants through community recruitment (only two studies used another recruitment method).

Only one of the studies met all quality criteria, therefore we did not examine differences between high-quality and other studies. Results of the subgroup analyses are presented in Table 11.4. As can be seen from this Table, we found a significant difference between studies using a waiting list control group and studies using another type of control group. The other analyses did not result in significant differences between subgroups.

There was only one study that compared the efficacy of BAT and pharmacotherapy (Dimidjian et al., 2006). This study did not result in evidence pointing at large differences between BAT and pharmacotherapy (effect size 0.06, n.s.). We found no study in which the combination of BAT and pharmacotherapy was compared to pharmacotherapy alone, nor did we find any study in which a combined treatment was compared to BAT alone. Furthermore, we found no study in which the efficacy of BAT could be compared to an untreated control group at follow-up.

Conclusion

BAT has been examined in a considerable number of randomized trials, although most of these were small and only one of them met all the quality criteria we used in this chapter. Results of these studies indicate that BAT has large effects on depression, and the comparative studies show that there is no important difference between BAT and CBT. However, these results should be considered with some caution because of the small number of high-quality studies, and because there were some indications for significant publication bias. Furthermore, there are hardly any studies comparing BAT with pharmacotherapy and with combined treatments, and no research is available on the longer-term efficacy of BAT.

The BAT is, however, an interesting treatment modality because the high-quality study that has examined its efficacy found indications that BAT may be more effective than cognitive restructuring in more severely depressed participants (Dimidjian et al., 2006). Furthermore, it has been found to be effective in depressed populations for whom other psychotherapies are not feasibe, such as depressed dementia patients and their caregivers (Teri, Logsdon, Uomoto, & McCurry, 1997), and psychiatric inpatients (Hopko, Lejuez, Lepage, Hopko, & McNeill, 2003).

SELF-CONTROL THERAPY

Another psychotherapy that could be considered as belonging to a broader family of cognitive behavior therapies of depression is self-control therapy (SCT). Based on Kanfer's behavioral model of self-control (Kanfer, 1971; Kanfer & Karoly, 1972), Rehm developed SCT in the 1970s (Fuchs & Rehm, 1977). SCT consists of three components: self-monitoring (aimed at changing the selective attention of depressed persons on negative events following their behavior), self-evaluation (aimed at changing the inclination of depressed persons to set unrealistic, perfectionistic, global standards for themselves, making attainment improbable), and self-reinforcement (aimed at increasing self-rewarding and decreasing self-punishment).

The developer of this therapy was involved in most of the studies examining SCT. However, we found two studies in which he was not involved (Rude, 1986; Barlow, 1986), and decided that this treatment met the criteria for being an evidence-based psychotherapy. We found no earlier meta-analytic study of SCT and this treatment strategy has not been explicitly mentioned in the clinical guidelines.

Efficacy

The eight studies examining the efficacy of SCT included 353 participants (148 in the experimental groups, 170 in the control groups, and 35 in the comparative treatments). We found six studies in which SCT was compared to a control group. One of these studies met all quality criteria (Dunn et al.,

2007). This was also the only study in which a clinical sample was used (the other studies recruited participants from the general population), and in which a diagnostic interview was used to establish the presence of a depressive disorder. In all studies SCT was administered in a group format, while the number of sessions ranged from 6 to 14.

The mean effect size of SCT compared to control groups was 0.45 (95% CI: 0.11 ~ 0.79; NNT = 4.00), with moderate heterogeneity ($I^2 = 47.95$).

One study was a possible outlier (Barlow, 1986). After removal of this study, the effect size was somewhat larger ($d = 0.53$; 95% CI: 0.28 ~ 0.77), but heterogeneity was reduced to zero ($I^2 = 0$). Because of the small number of studies, we did not conduct subgroup analyses.

We found some indications for publication bias. Duval and Tweedie's trim and fill procedure resulted in a considerable reduction of the effect size (adjusted effect size: 0.29; 95% CI: –0.07 ~ 0.64; number of studies trimmed: 2), which was not significantly different from zero anymore.

We could compare SCT directly to other psychotherapies in two studies (with three comparisons; Fleming & Thornton, 1980; Fuchs & Rehm, 1977). Because of this small number of studies, we did not conduct a meta-analysis. However, in one study (Fleming & Thornton, 1980) no significant difference was found between SCT, CBT, and supportive psychotherapy. The other study, however, found that SCT was more effective than supportive psychotherapy (Fleming & Thornton, 1980).

We detected only one study (Roth, Bielski, Jones, Parker, & Osborn, 1982) in which SCT was directly compared to a combined treatment of SCT and pharmacotherapy. This study did not find indications of a difference between the two, although the power was probably too low to find significant differences ($N = 26$). We found no studies in which SCT was directly compared to pharmacotherapy, or studies in which pharmacotherapy was compared to a combined treatment of SCT and pharmacotherapy.

In one of the studies on SCT, data on 3-month follow-up were presented (apart from the comparison at post-test; Robinsohn-Whelen, Hughes, Taylor, Hall, & Rehm, 2007). In this study, SCT for depressed rural women with disabilities was compared to a control group (which had only access to regular care from centers for independent living) 3 months after the end of the treatment. Unfortunately, insufficient data were reported for the calculation of the effect size at follow-up. No other data on the longer-term efficacy of SCT was found.

Conclusion

We found some evidence that SCT is efficacious as a treatment for depression. However, the quality of these studies was not optimal, and we found hardly any research in which SCT was compared to other psychotherapies, pharmacotherapy, combined treatments, or research on longer-term efficacy of SCT. More research is needed to establish the efficacy of SCT.

PROBLEM-SOLVING THERAPY

Problem-solving therapy (PST) is another psychological treatment that could be seen as belonging to a broader family of cognitive behavior therapies. In PST, the patient systematically identifies his or her problems, generates alternative solutions for each problem, selects the best solution, develops and conducts a plan, and evaluates whether this has solved the problem. There are several types of PST for depression. The first type, social problem-solving therapy (SPST), was developed in the 1980s (D'Zurilla & Nezu, 1982; A. M. Nezu & Perri, 1989) and is typically conducted in a group format of 10 to 12 sessions. This treatment focuses not only on the problem-solving skills themselves, but also on changing those attitudes or beliefs that may inhibit or interfere with attempts to engage in

the remaining problem-solving tasks. The second type, PST for primary care (PST-PC), was developed in the 1990s (Mynors-Wallis, Gath, Lloyd-Thomas, & Tomlinson, 1995) and is applied individually in six sessions. It focuses on the core elements of problem solving and can be used by trained nurses. A third type of problem solving, self-examination therapy (SET) (Bowman, Scogin, & Lyrene, 1995), is aimed at determining the major goals in their lives, investing energy only in those problems that are related to the goals in their lives, and learning to accept those situations that cannot be changed. Problem-solving skills are the core element of this approach. The SET is typically used in a guided self-help format, but can also be applied in group and individual settings.

Clinical Guidelines and Earlier Meta-Analyses

Problem-solving therapy has been examined in two earlier meta-analyses (Cuijpers, van Straten, & Warmerdam, 2007b; Malouff, Thorsteinsson, & Schutte, 2007). One of these was aimed at reviewing PST for depression (Cuijpers et al., 2007b), while the other was aimed at the efficacy of PST in reducing mental and physical health problems (although it included 10 studies on depression; Malouff et al., 2007). The first meta-analysis (Cuijpers et al., 2007b) used the same data set as the one we will use in here. Both meta-analyses concluded that PST is efficacious in the treatment of depression, with moderate to large effect sizes when compared with control groups.

Most clinical practice guidelines recommend PST especially for mild depression in primary care. For instance, NICE (2004) recommends six to eight brief CBT or PST sessions for mild depression in primary care, but all guidelines address considering alternative first-step strategies as well; that is, psychoeducation, exercise, guided self-help computerized CBT (NICE, CBO/Trimbos Institute), and supportive clinical care (RANZCP, 2004).

Efficacy

We found 13 studies (14 comparisons) comparing PST to a control group. The mean effect size of these studies was 0.87 (95% CI: 0.49 ~ 1.24), which corresponds with an NNT of 2.16. Heterogeneity was very high ($I^2 = 82.24$, $p < 0.001$).

Visual inspection of the funnel suggested two possible outliers with extremely high effect sizes (A. Nezu, 1986; A. M. Nezu & Perri, 1989). Removal of these studies resulted in a somewhat lower effect size ($d = 0.61$; 95% CI: 0.30 ~ 0.92; corresponding NNT = 2.99), but heterogeneity remained high ($I^2 = 73.80$, $p < 0.001$). When we examined the effect sizes based on the BDI only, somewhat higher effect sizes were found ($d = 1.11$; 95% CI: 0.67 ~ 1.56; NNT = 1.76), with high heterogeneity ($I^2 = 77.65$, $p < 0.001$). The effect sizes based on the Hamilton Depression Rating Scale (HAM-D) were also high ($d = 1.17$; 95% CI: 0.75 ~ 1.59; NNT = 1.69), but heterogeneity was moderate in these analyses ($I^2 = 48.76$, $p < 0.1$).

Both the funnel plot and Duval and Tweedie's trim and fill procedure suggested that there was considerable publication bias. After adjustment for possible publication bias, the mean effect size decreased from 0.87 to 0.28 (95% CI: –0.11 ~ 0.67; number of trimmed studies: 6; NNT = 6.41). This was not significantly different from zero.

In the subgroup analyses, we found a trend indicating that studies in which participants were recruited from the community have higher effect sizes than studies in which participants were recruited from clinical or other samples (Table 11.5). We also found that studies in which a group format was used resulted in significantly higher effect sizes than studies in which an individual or guided self-help format was used. However, the two possible outliers we identified (A. Nezu, 1986; A. M. Nezu & Perri, 1989) both used the group format. After removal of these studies the difference was still significant ($p < 0.01$).

TABLE 11.5 Efficacy of Problem-Solving Therapy Compared to Control Groups, Other Psychotherapies, and Pharmacotherapy

	N_{comp}	D	95% CI	Z	I^2	NNT	P
Problem-solving versus control groups							
– All studies	14	0.87	0.49 ~ 1.24	4.56****	82.24****	2.16	
– Two possible outliers removed[a]	12	0.61	0.30 ~ 0.92	3.86****	73.80****	2.99	
– BDI only	12	1.11	0.67 ~ 1.56	4.92****	77.65****	1.76	
– HAM-D only	8	1.17	0.75 ~ 1.59	5.51****	48.76*	1.69	
Publication bias							
▪ After correction for publication bias	14	0.28	–0.11 ~ 0.67			6.41	
Subgroup analyses							
Recruitment							0.067
▪ General population	8	1.43	0.62 ~ 2.25	3.45***	87.07****	1.45	
▪ Clinical	4	0.31	–0.16 ~ 0.79	1.30 ns	63.01**	5.75	
▪ Other	2	0.65	–0.24 ~ 1.53	1.43 ns	83.93**	2.82	
Target group							0.921
▪ Adults in general	10	0.90	0.44 ~ 1.37	3.78****	82.11****	2.10	
▪ Specific target group	4	0.85	0.01 ~ 1.70	1.98**	86.89****	2.21	
Specific types of depressive disorders							0.533
▪ Diagnosed mood disorder	10	0.94	0.48 ~ 1.39	4.04****	86.39****	2.02	
▪ Other definition	4	0.73	0.24 ~ 1.21	2.92***	23.49 ns	2.54	
Format							0.001
▪ Individual	5	0.31	–0.04 ~ 0.65	1.75*	77.80***	5.75	
▪ Group	6	1.76	1.08 ~ 2.44	5.09****	60.73**	1.27	
▪ Guided self-help	3	0.54	0.04 ~ 1.04	2.12**	0	3.36	
Control group							0.000
▪ Waiting list	8	1.53	1.03 ~ 2.02	6.02****	53.12**	6.58	
▪ Care-as-usual	3	0.27	0.06 ~ 0.48	2.47**	0	6.58	
▪ Other	3	0.14	–0.28 ~ 0.57	0.67 ns	74.82	12.82	
Study quality							0.001
▪ High quality	2	0.10	–0.22 ~ 0.42	0.63 ns	65.04*	17.86	
▪ Other studies	12	1.11	0.61 ~ 1.61	4.33****	81.03****	1.76	
Problem-solving versus other psychotherapies							
▪ All studies	7	0.40	–0.07 ~ 0.87	1.68*	72.78***	4.50	
▪ One possible outlier removed[b]	6	0.20	–0.17 ~ 0.57	1.05	54.21*	8.93	
Problem-solving versus pharmacotherapy	5	–0.11[b]	–0.27 ~ 0.04	–1.40 ns	0	16.13	

Notes: *: $p < 0.1$; **: $p < 0.05$; ***: $p < 0.01$; ****: $p < 0.001$; ns: not significant
A positive d indicates that PST is more effective than the alternative treatment; but when PST is compared to combined treatments, a positive d indicates that the combined treatment is more effective.
[a] A. Nezu (1986); A. M. Nezu and Perri (1989)
[b] A. Nezu (1986)

otherapies, and

	NNT	P
:**	2.16	
:**	2.99	
:**	1.76	
	1.69	
	6.41	
		0.067
***	1.45	
*	5.75	
*	2.82	
		0.921
***	2.10	
***	2.21	
		0.533
***	2.02	
ns	2.54	
		0.001
:**	5.75	
:*	1.27	
	3.36	
		0.000
:*	6.58	
	6.58	
	12.82	
		0.001
*	17.86	
****	1.76	
***	4.50	
*	8.93	
	16.13	

mpared to

Our subgroup analyses also indicated that the studies in which a waiting list control group was used had significantly higher effect sizes than studies in which care-as-usual or other control groups were used. Two of the studies comparing PST to control conditions met all our quality criteria. These two studies had significantly lower effect sizes than the other studies.

PST could be compared to other psychotherapies in seven studies (Table 11.5). There was a trend ($p < 0.1$) indicating that PST was more effective than other psychotherapies for depression ($d = 0.40$; 95% CI: $-0.07 \sim 0.87$). Heterogeneity, however, was high ($I^2 = 72.78$). Removal of one possible outlier with an extremely high effect size (A. M. Nezu et al., 1989) resulted in a small, nonsignificant effect size ($d = 0.20$; 95% CI: $-0.17 \sim 0.57$) with moderate heterogeneity ($I^2 = 54.21$).

PST could be compared to pharmacotherapy in four studies (five comparisons). The mean effect size indicating the difference between the two types of treatment was –0.11 in favor of pharmacotherapy (95% CI: $-0.27 \sim 0.04$; $p > 0.1$), with zero heterogeneity. We found only one study in which pharmacotherapy was compared to the combination of PST and pharmacotherapy (Mynors-Wallis, Gath, Day, & Baker, 2000). In this study a small, not significant effect size ($d = 0.21$) was found in favor of the combined therapy. This study was also the only study in which PST was compared to the combination of PST and pharmacotherapy (two comparisons, one in which PST provided by a nurse was compared to the combined treatment, and one in which PST by a general practitioner was compared to the combined treatment). Both comparisons resulted in small and nonsignificant effect sizes (0.21 and 0.24) in favor of the combined treatment.

In only one of the controlled studies, PST could be compared to a control condition at 6- and 12-month follow-up (Dowrick et al., 2000). At both follow-up measurements small, nonsignificant effect sizes were found ($d = 0.25$ at 6- and $d = 0.12$ at 12-month follow-up).

Conclusion

We found considerable evidence that PST is efficacious in the treatment of depression, compared to control groups. However, heterogeneity was high in most analyses, and our subgroup analyses could only partially explain this heterogeneity. This implies that there are significant differences between study outcomes that cannot be explained by the moderating variables we examined in our subgroup analyses. We also found indications for publication bias. Furthermore, only two studies met all quality criteria, and these two studies resulted in a small, nonsignificant effect size, which did differ significantly from the other studies. In the studies in which PST was compared directly to other psychotherapies, we found a trend indicating that PST may be more efficacious than other psychotherapies. However, heterogeneity was high in these analyses. We found no significant difference between PST and pharmacotherapy. Because of the mixed results of our meta-analyses of PST, we have to be cautious with the interpretation of these results.

SOCIAL SKILLS TRAINING

The last evidence-based psychotherapy that could be considered as belonging to the broader family of cognitive behavioral treatments for adult depression is social skills training (SST). Social skills training is a form of behavior therapy in which clients are taught skills that help in the building and retainment of social and interpersonal relationships. In most versions of SST, patients are trained in assertiveness. This means that the client is taught to stand up for his or her rights, through expressing feelings in an honest and respectful way that does not insult people.

SST has been examined as a treatment of depression in the 1970s and 1980s. Despite positive findings, however, not much research has been conducted since then, resulting in a small group of studies, most of which do not meet currect standards of randomized controlled trials.

We found no earlier meta-analysis of SST, and none of the clinical guidelines we examined mentioned SST as a possible treatment of adult depression. We did find, however, three studies in which SST was compared to a control condition.

The mean effect size of these studies was 0.63 (95% CI: 0.09 ~ 1.16; NNT = 2.91), with zero heterogeneity. We found no indication for publication bias (adjusted effect size was the same as the unadjusted effect size).

We also found five studies (seven comparisons) in which SST could be compared to other psychotherapies (Cuijpers, van Straten, Andersson, et al., 2008). The mean effect size indicated a small, nonsignificant effect size in favor of SST compared to other psychotherapies for depression ($d = 0.05$; $-0.26 \sim 0.36$; n.s.), with zero heterogeneity ($I^2 = 0$).

We detected no study in which SST was directly compared to pharmacotherapy or a combined treatment of SST and pharmacotherapy. We did find one study in which pharmacotherapy was compared with a combined treatment of SST and pharmacotherapy (Bellack, Hersen, & Himmelhoch, 1981). In this study, no indication was found that the combined treatment was significantly more efficacious than pharmacotherapy alone ($d = -0.10$), but this should be considered with caution because there was not sufficient statistical power to find smaller significant effect sizes.

We found no study in which the effects of SST could be compared to a control group at follow-up.

Despite some early studies showing that SST may be efficacious in the treatment of depression, there is not much strong evidence supporting this claim. The number of studies is small, the quality of these studies is limited, only waiting list control groups are used, no long-term effects are known, and hardly any comparisons with pharmacotherapy or combined treatments are made. On the other hand, the evidence that is available is promising, and more research is certainly warranted.

INTERPERSONAL PSYCHOTHERAPY

Interpersonal psychotherapy (IPT) is a brief and highly structured manual-based form of psychotherapy that addresses interpersonal issues in depression, to the exclusion of all other foci of clinical attention. In the initial phase of IPT, the depressive symptoms are explored and psychoeducation about depression is given. The interpersonal context of the patient is explored and depressive symptoms are linked to recent interpersonal events. There are four possible treatment focuses: complicated grief, interpersonal conflict, role transition, and interpersonal deficits (Van Schaik et al., 2003). Interpersonal psychotherapy has no specific theoretical origin although its theoretical basis can be seen as coming from the work of Sullivan, Meyer, and Bowlby. The current form of the treatment was developed by the late Gerald Klerman and Myrna Weissman in the 1980s (Klerman, Weissman, Rounsaville, & Chevron, 1984).

Clinical Guidelines and Earlier Meta-Analyses

Although IPT has been examined in a considerable number of randomized controlled trials, only one earlier meta-analysis has focused on IPT for depression (De Mello et al., 2005). This meta-analysis found significant and large effects for IPT compared to placebo, and superior effects of IPT compared to cognitive behavior therapy. However, this meta-analysis was based on only half of the currently available studies. Furthermore, in this meta-analysis no analyses of heterogeneity were conducted and there were no subgroup analyses conducted to explore possible causes of heterogeneity. Finally, the possibility of publication bias was not examined.

In all practice guidelines, IPT has been recommended as psychotherapeutic treatment of choice, apart from CBT. For moderate depression the RANZCP (2004) states that IPT is equally effective compared to antidepressant

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medication. NICE (2004) recommends IPT for moderately to severely depressed patients in primary care, and CBT as first treatment of choice after trying antidepressants. However, in case of a preference of the patient for IPT or if a clinician thinks the patient will benefit from IPT, this treatment strategy should be chosen. The Swedish guidelines (Åsberg et al., 2004) recommend IPT in case of relationship issues, but also overall for mild to moderate depression. The combination of IPT with antidepressants may result in lower risk of relapse after remission (APA, 2000). In addition, some guidelines (APA, 2000; CBO/Trimbos Institute, 2005) underscore the potential value of IPT in the maintenance phase for reducing risk of relapse.

Efficacy

We could compare efficacy of IPT to a control condition in 12 studies. The mean effect size for these studies was 0.68 (95% CI: $0.29 \sim 1.07$; $p < 0.01$), with high heterogeneity ($I^2 = 88.31$). This effect size corresponds with an NNT of 2.70 (Table 11.6).

After removal of two possible outliers (Bolton et al., 2003; Forsyth, 2000), the effect size was somewhat reduced ($d = 0.45$; NNT = 4.00), and heterogeneity was also reduced to a moderate level ($I^2 = 47.63$). The effect sizes based on the BDI and HAM-D resulted in comparable outcomes (Table 11.6). The funnel plot nor Duval & Tweedie's trim and fill method resulted in indications for publication bias (the adjusted and unadjusted effect sizes were exactly the same).

We conducted a series of subgroup analyses in which we divided studies according to major characteristics. Results are presented in Table 11.6. As can be seen, no indications were found that there were significant differences between studies aimed at adults in general compared to studies for more specific target groups, studies aimed at patients with major depression versus studies in which other inclusions were used, and studies aimed at treatment versus those aimed at prevention. We found a trend ($p < 0.1$) indicating that studies using clinical samples had smaller effect sizes than studies in which patients were recruited through other methods. We also found that studies in which IPT was used in group format resulted in higher effect sizes than studies in which IPT was used as individual therapy, but this result must be considered with caution because only two studies examined IPT in group format. We also found that type of control group was significantly related to effect size ($p < 0.001$), with waiting list control groups resulting in the largest effect size, care-as-usual control groups in smaller effect sizes, and other control groups (including pill placebo) in the smallest effect sizes. Only two studies met all quality criteria and these studies resulted in significantly smaller effect sizes than other studies ($p < 0.05$).

IPT could be directly compared to other psychotherapies in eight studies. In these studies patients were assigned to IPT or another psychotherapy. Such studies have the advantage in that they are well equipped to examine the relative efficacy of different types of treatment because they rule out the possible influence of study characteristics, and they therefore provide reliable evidence about a possible superiority of one type of therapy over the other (Cuijpers, van Straten, Andersson, et al., 2008; Spielmans, Pasek, & McFall, 2007). Effect sizes in these studies do not indicate the strength of the effects of one treatment over a control group, but they represent the strength of the effects of one type of psychotherapy over another. The effect size indicating the difference between IPT and other psychotherapies was 0.21 (in favor of IPT), which indicates that IPT is somewhat more effective than other psychotherapies ($p < 0.05$; Table 11.6). The five studies in which IPT was compared to cognitive behavior therapy resulted in a nonsignificant effect size of 0.12 (in favor of IPT). Heterogeneity was zero to low in these analyses, suggesting that there were few systematic differences between the studies.

TABLE 11.6 Efficacy of Interpersonal Psychotherapy Compared to Control Groups, Other Psychotherapies, and Pharmacotherapy

	N_{comp}	D	95% CI	Z	I^{2a}	NNT	P^b
IPT versus (untreated) controls							
▪ All studies	12	0.68	0.29 ~ 1.07	3.39***	88.31****	2.70	
▪ Two possible outliers removed[c]	10	0.45	0.23 ~ 0.66	4.09****	47.63**	4.00	
▪ BDI only	5	0.74	0.13 ~ 1.35	2.37**	85.60****	2.50	
▪ HAM-D only	8	0.50	0.23 ~ 0.77	3.69****	50.68**	3.62	
Publication bias							
▪ After correction for publication bias	12	0.68	0.29 ~ 1.07			2.70	
Recruitment							
▪ Clinical samples	5	0.34	0.17 ~ 0.52	3.87****	0	5.26	0.076
▪ Other recruitment	7	0.89	0.31 ~ 1.46	3.02***	87.69****	2.13	
Target group							
▪ Adults in general	5	0.70	–0.02 ~ 1.41	1.92*	93.44****	2.63	0.928
▪ Specific target group	7	0.66	0.20 ~ 1.19	2.82***	80.46****	2.78	
Specific types of depressive disorders							
▪ Major depressive disorder	7	0.46	0.18 ~ 0.74	3.20***	64.14**	3.91	0.183
▪ Other definition	5	0.99	0.26 ~ 1.73	2.64***	88.85****	1.94	
Format							
▪ Individual	10	0.45	0.23 ~ 0.66	4.09****	47.63**	4.00	0.000
▪ Group	2	1.83	1.56 ~ 2.11	12.93****	0	1.24	
Control group							
▪ Waiting list	2	1.41	0.83 ~ 1.98	4.81****	59.57	1.47	0.003
▪ Care-as-usual	6	0.63	–0.01 ~ 1.26	1.95*	92.56****	2.91	
▪ Other	4	0.32	0.05 ~ 0.58	2.36**	0	5.56	
Study quality							
▪ High quality	2	0.21	–0.04 ~ 0.45	1.67*	ns	0	0.026
▪ Other studies	10	0.78	0.34 ~ 1.23	3.46***	87.07****	2.39	
Prevention/treatment							
▪ Indicated prevention	4	0.75	0.05 ~ 1.45	2.10**	77.95***	2.48	0.814
▪ Treatment	8	0.65	0.15 ~ 1.14	2.56**	91.29****	2.82	
IPT versus other therapies							
IPT versus all other psychotherapies	8	0.21	0.01 ~ 0.42	2.02**	21.98 ns		
IPT versus cognitive behavior therapy	5	0.12	–0.33 ~ 0.09	–1.13	0 ns		
IPT versus pharmacotherapy	8	–0.17	–0.32 ~ –0.02	–2.20**	0 ns		
IPT versus combined therapy	4	0.18	–0.03 ~ 0.39	1.67*	0 ns		
Pharmacotherapy vs. combined therapy	8	0.22	0.02 ~ 0.43	2.11**	29.84 ns		

Notes: *: $p < 0.1$; **: $p < 0.05$; ***: $p < 0.01$; ****: $p < 0.001$; ns: not significant
Abbreviations: CI: confidence intervals; N_{comp}: number of comparisons; NNT: numbers-needed-to-treat.
[a] The p-values in this column indicate whether the Q-statistic is significant (the I^2 statistics do not include a test of significance).
[b] The p-values in this column indicate whether the difference between the effect sizes in the subgroups is significant.
[c] Bolton et al. (2003); Forsyth (2000)

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	NNT	P^b
**	2.70	
	4.00	
**	2.50	
	3.62	
	2.70	
	5.26	0.076
***	2.13	
***	2.63	0.928
***	2.78	
*	3.91	0.183
***	1.94	
*	4.00	0.000
	1.24	
	1.47	0.003
****	2.91	
	5.56	
	0	0.026
****	2.39	
***	2.48	0.814
****	2.82	

ns

4 ns

-treat.
t include a test of

roups is significant.

IPT could be compared directly to pharmacotherapy in eight studies. This resulted in an effect size of 0.17 in favor of pharmacotherapy ($p < 0.05$). When IPT was compared to a combination of IPT and pharmacotherapy, an effect size of 0.18 in favor of the combined treatment was found ($p < 0.1$). A comparison of pharmacotherapy with the combination of IPT and pharmacotherapy resulted in an effect size of 0.22 in favor of the combined treatment ($p < 0$ .05). Heterogeneity was zero to low in the analyses.

We collected five trials that examined the long-term effects of IPT as a maintenance treatment. Because designs of these studies and the follow-up periods differed considerably, we did not conduct a meta-analysis of the outcomes of these studies. However, we will briefly describe the results of these studies. In the earliest study of IPT, 150 depressed women who had responded to pharmacotherapy were randomized to continuation IPT, placebo, or several other treatment arms (Klerman, DiMascio, Weissman, Prusoff, & Paykel, 1974). Although the relapse rate at 8-month follow-up in the IPT condition was lower (17%) than in the placebo condition (31%), this difference was not significant. In another study, 128 patients who had had at least three episodes of major depression were examined (Frank et al., 1990). Those who responded to a combined acute treatment of pharmacotherapy and IPT were randomized to maintenance IPT, placebo, or combined maintenance IPT plus pharmacotherapy treatments. After 3 years no significant effects of IPT on relapse rates were found, although the effects were in the expected direction (relapse in IPT: 46%, in placebo: 65%). In the third study (Schulberg et al., 1996), 276 patients were randomized to acute plus maintenance IPT, acute plus maintenance pharmacotherapy or usual care. At 8-month follow-up, 70% of the patients in the two active treatment arms had recovered, compared to 20% in the usual care group. No significant difference between the two active treatments was found. In the remaining two trials examining the efficacy of maintenance IPT (Reynolds et al., 1999; Reynolds et al., 2006), IPT was not examined as a single intervention. It was only examined in combination with placebo. However, a placebo may have an effect on depression in itself or may alter the effects of psychotherapy alone (Wampold et al., 2005). In one of the trials (Reynolds et al., 1999) it was found that maintenance IPT plus placebo did reduce relapse significantly compared to placebo alone, but this finding was not supported in the second trial (Reynolds et al., 2006).

Conclusion

We found convincing evidence that IPT is efficacious as an acute treatment of depression. In a meta-analysis of comparative trials, we also found that IPT is significantly more efficacious than other psychotherapies. Furthermore, adding IPT to pharmacotherapy results in significantly higher effect sizes and we found a trend that combined therapy is more effective than IPT alone. However, we also found that high-quality studies had significantly lower effect sizes than other studies, pharmacotherapy is significantly more efficacious than IPT, and the research on IPT as a maintenance treatment does not result in very clear outcomes. More research is needed to examine these issues.

NONDIRECTIVE SUPPORTIVE THERAPY

We found a broad category of unstructured therapies that are aimed at supporting depressed patients, without specific psychological techniques other than those common to all approaches such as helping people to ventilate their experiences and emotions and offering empathy (Cuijpers, van Straten, Andersson, et al., 2008). This nondirective supportive therapy (NDST) is not aimed at solutions, or acquiring new skills. It is based on the

assumption that relief from personal problems may be achieved through discussion with others. These nondirective therapies are commonly described in the literature as either counseling or supportive therapy. We distinguished two main types of NDST: (1) NDST explicitly referring to the work of Rogers (1967), which is a specific form of nondirective therapy in which reflection is an important therapeutic technique to elicit feelings; and (2) NDST that did not explicitly refer to the work of Rogers, but met the earlier definition of NDST.

Clinical Guidelines and Earlier Meta-Analyses

We found only one earlier meta-analysis in which efficacy of supportive therapies was examined (Churchill et al., 2001). In this study, supportive therapies were defined as "client-centered, gestalt, process-experiential, non-specific and attention-placebo therapies." In this meta-analysis it was found that cognitive behavior therapies were significantly more effective than supportive therapies, although the number of comparisons was small ($N = 5$).

None of the guidelines, except RANZCP (2004), recommend supportive therapy for depression. The APA (2000) points out that based on very limited controlled studies, supportive group therapy has been suggested to be useful for depression, but future studies are required. However, RANZCP states that for mild depression, supportive clinical care supported by psychoeducation and supplemented by teaching problem-solving skills is the treatment of choice and other treatments are not effective. It has to be mentioned that the recommended supportive clinical care has potentially a broader definition since it also includes PST techniques.

Efficacy

NDST Versus Control Conditions

We could compare efficacy of NDST to a control condition in 13 studies (14 comparisons). The resulting effect size was 0.57 (95% CI: 0.37 ~ 0.77), which corresponds to an NNT of 3.18. Heterogeneity was low to moderate ($I^2 = 36.81$). One of the included studies (Ayen & Hautzinger, 2004) had a very high effect size ($d = 2.06$) and was a possible outlier. After removal of this study the effect size was somewhat lower ($d = 0.48$; 95% CI: 0.34 ~ 0.63; NNT = 3.76), and heterogeneity was reduced to zero.

When we limited the effect sizes to the BDI, the resulting effect size was 0.51 (95% CI: 0.22 ~ 0.80; NNT = 3.55), with moderate heterogeneity. But after removal of the possible outlier, heterogeneity again was reduced to zero (Table 11.7). When we limited effect sizes to the HAM-D, we found comparable results (Table 11.7). Duvall and Tweedie's trim and fill procedure did not result in strong indications for publication bias (adjusted effect after correction for publication bias: 0.49; 95% CI: 0.26 ~ 0.73; number of trimmed studies: 2).

We examined in a subgroup analysis whether the two subtypes of NDST we distinguished (NDST that explicitly referred to the works and methods of Rogers and other NDSTs) differed significantly from each other. Although the NDST that referred to Rogers (1967) had somewhat lower effect sizes than other NDSTs, this difference was not significant. In other subgroup analyses we also found no indication that effect sizes were significantly related to recruitment method, target group, diagnosis of depression, format, or control group. Because only one study met all quality criteria (Cooper, Murray, Wilson, & Romaniuk, 2003; $d = 0.26$; 95% CI: –0.13 ~ 0.65), we did not examine differences between high-quality and other studies.

NDST Versus Other Treatments and as Part of Combination Treatments

We found 20 studies (30 comparisons) in which NDST was compared to another psychotherapy. The mean effect size indicating the difference

TABLE 11.7 Efficacy of Non-Directive Supportive Therapy Compared to Control Groups, Other Psychotherapies, and Pharmacotherapy

	N_{comp}	D	95% CI	Z	I^2	NNT	P
Supportive therapy versus control groups							
– All studies	14	0.57	0.37 ~ 0.77	5.71****	36.81	3.18	
– One possible outlier removed[a]	13	0.48	0.34 ~ 0.63	6.38****	0	3.76	
– BDI only	8	0.51	0.22 ~ 0.80	3.47***	46.96	3.55	
– BDI only, one possible outlier removed[a]	7	0.39	0.20 ~ 0.59	3.93****	0	4.59	
– HAM-D only	3	0.64	0.23 ~ 1.06	3.03***	0	2.86	
Publication bias							
▪ After correction for publication bias	14	0.49	0.26 ~ 0.73			3.68	
Subgroup analyses[b]							
Subtype							0.235
▪ NDST according to Rogers	4	0.44	0.21 ~ 0.67	3.76****	0	4.10	
▪ Other NDST	10	0.66	0.38 ~ 0.95	4.56****	49.92**	2.78	
Recruitment							0.662
▪ General population	4	0.83	–0.01 ~ 1.66	1.95*	66.98**	2.26	
▪ Clinical	3	0.56	0.29 ~ 0.84	3.99****	0	3.25	
▪ Other	7	0.47	0.27 ~ 0.68	4.49****	16.75	3.85	
Target group							0.709
▪ Adults in general	5	0.54	0.28 ~ 0.79	4.11****	0	3.36	
▪ Specific target group	9	0.61	0.32 ~ 0.89	4.18****	56.57*	2.99	
Specific types of depressive disorders							0.808
▪ Diagnosed mood disorder	9	0.61	0.31 ~ 0.90	4.02****	56.51**	2.99	
▪ Other definition	5	0.56	0.32 ~ 0.80	4.52****	0	3.25	
Format							0.390
▪ Individual	7	0.48	0.30 ~ 0.67	5.14****	3.79	3.76	
▪ Group	7	0.68	0.27 ~ 1.09	3.26***	56.29**	2.70	
Control group							0.119
▪ Waiting list	5	0.91	0.25 ~ 1.57	2.69***	57.87*	2.08	
▪ Care-as-usual	8	0.44	0.28 ~ 0.60	5.30****	0	4.10	
▪ Other	1	0.97	0.35 ~ 1.59	3.07***	0	1.97	
Supportive therapy versus other psychotherapies							
▪ All studies	30	–0.17	–0.32 ~ –0.03	–2.29**	40.80**	10.42	
▪ Two possible outliers ($d > 1.5$) removed[c]	28	–0.09	–0.21 ~ 0.02	–1.64 ns	1.95 ns	20.00	
Supportive therapy versus pharmacotherapy	4	–0.15	–0.62 ~ 0.32	–0.62 ns	65.91**	11.90	

Notes: *: $p < 0.1$; **: $p < 0.05$; ***: $p < 0.01$; ****: $p < 0.001$; ns: not significant

A positive d indicates that PST is more effective than the alternative treatment; but when PST is compared to combined treatments, a positive d indicates that the combined treatment is more effective.

[a] Ayen & Hautzinger (2004)

[b] Only one study (Cooper et al., 2003) met all quality criteria; therefore, we did not conduct subgroup analyses examining differences between high-quality and other studies.

[c] Ayen & Hautzinger (2004); Fuchs and Rehm (1977)

between NDST and other psychotherapies was –0.17 (95% CI: –0.32 ~ –0.03; $I^2 = 40.80$), which indicated a small but significant effect in favor of other psychotherapies. Two of these studies found very large differences between NDST and other psychotherapies ($d > 1.5$; Ayen & Hautzinger, 2004; and Fuchs & Rehm, 1977). After removal of these two possible outliers, the resulting effect size was not significant anymore and heterogeneity was very low ($I^2 = 1.95$).

The difference between NDST and other psychotherapies was explored in depth in a separate publication (Cuijpers, van Straten, Warmerdam, & Andersson, 2008b). In this separate study, subgroup analyses were conducted to explore possible differences between groups of studies. In these analyses, no significant differences were found between the studies that examined NSDT according to Rogers and the studies that examined other forms of NSDT. In some studies, the authors explicitly indicate that NDST was used as a control condition for another type of psychotherapy (such as CBT or IPT). In subgroup analyses we found no indications that studies in which NDST was used as a control condition differed significantly from other studies examining NDST.

We could compare efficacy of NDST with pharmacotherapy in four studies. The mean effect size indicating the difference between NDST and pharmacotherapy was –0.15 (95% CI: –0.62 ~ 0.32), a small, nonsignificant difference in favor of pharmacotherapy. We found only one study in which NDST was compared to the combination of NDST and pharmacotherapy (Markowitz et al., 1998). This study detected a large and significant effect ($d = 0.65$) in favor of the combined treatment. No study was found in which pharmacotherapy was compared to the combination of NDST and pharmacotherapy.

Long-Term Effects of NDST

We found three studies in which efficacy of NDST could be compared to care-as-usual at follow-up (in a fourth study follow-up data were also reported, but the dropout rate was higher than 50% and will therefore not be described here).

In the first study, among primiparous women with postpartum depression, acute treatment effects of NDST were found (Cooper et al., 2003). However, at 4.5-, 9-, 18-, and 60-month follow-up, no significant difference was found between those receiving NDST and those in the care-as-usual control group. In the second study (King et al., 2000), significant effects for NDST were found at 4 months after baseline compared to care-as-usual among depressed primary care patients. But again, 12 months after baseline, no significant difference was found. The third study we found compared NDST in cancer patients ($N = 21$) to care-as-usual ($N = 24$; Evans & Connis, 1995). This study demonstrated a moderate effect ($d = 0.50$) of the intervention compared to the care-as-usual control group at 6-month follow-up.

Conclusion

We found convincing evidence that NDST is effective in the treatment of depression. Although NDST is a broad category of therapies, ranging from Rogerian therapy to support groups for depressed general medical patients and women with postpartum depression, heterogeneity was remarkably low. The number of studies in which NDST was directly compared to other psychotherapies was high (30 comparisons). Although there was a small but significant difference in favor of the other therapies, this difference could be attributed to two possible outliers with extremely high differential effect sizes. After removal of these outliers, the difference between NDST and other therapies was not significant anymore. In several studies, NDST has been used as a control condition for other psychotherapies for adult depression. However, these studies did not indicate that NDST was indeed less effective than the other therapies, suggesting that NDST is an effective treatment for adult depression.

SHORT-TERM PSYCHODYNAMIC PSYCHOTHERAPY

Short-term psychodynamic psychotherapies (STPP) are rooted in psychoanalytical theories and can be distinguished from other psychotherapy methods by their emphasis on the investigation of unconscious feelings, motivations, desires, and fantasies in order to treat the depressive symptoms. The STPP aims at gaining more insight in the depressive symptoms by gradually linking them to the patient's unconscious dynamics, thereby reducing their severity (Busch, Rudden, & Shapiro, 2004). Different types of STPP have been developed by Malan (1963), Mann (1973), Sifneos (1979), Davanloo (1980), Strupp and Binder (1984), Pollack and Horner (1985), and de Jonghe (1994).

Clinical Guidelines and Earlier Meta-Analyses

STPP has been examined in three earlier meta-analyses (Churchill et al., 2001; Leichsenring, 2001; McCusker et al., 1998). McCusker and colleagues (1998) found no significant differences between *rational treatments* (CBT, BT, or CT) and *emotive treatments* (STPP) in the treatment of depression in older ambulatory patients, analyzing four studies. Leichsenring (2001), including six studies comparing STPP with CBT, also demonstrated that both were equally effective in the treatment of depression, a result the author suggested should be regarded as preliminary, due to the small number of included studies. Churchill et al. (2001) compared STPP to CBT and to nondirective supportive therapy (NDST) and found that patients receiving CBT were more likely to recover than those receiving STPP, but found no differences in posttreatment symptoms, symptom reduction, or dropout. Due to a lack of data, no conclusions could be drawn regarding the efficacy of STPP versus NDST.

RANZCP (2004) states that there is no evidence for the effectiveness of STPP, whereas in the Dutch (CBO/Trimbos Institute, 2005, 2009) and Swedish guidelines (Åsberg et al., 2004) STPP is described as an effective treatment strategy for mild to moderate depression. The APA (2000) mentions STPP for treatment of depression, but underscores that this was based on clinical consensus rather than evidence.

Efficacy

We have explored efficacy of STPP in more depth in an earlier meta-analysis (Driessen et al., 2010) and refer the interested reader to this study for more detailed information. This paragraph contains a summary of this study, reporting on the main results only.

STPP could be compared to control groups at posttreatment in four studies (Table 11.8), including five comparisons and totaling 164 subjects (82 in the STPP conditions and 82 in the control conditions).

The control conditions consisted of waitlist control groups ($N = 4$) and care as usual ($N = 1$). None of these studies met all eight quality criteria. The pooled effect size indicating the difference between STPP and the control conditions at posttreatment was 0.76 (95% CI: 0.34 ~ 1.17), significantly in favor of STPP and corresponding with a NNT of 2.44. Heterogeneity was low ($I^2 = 22.90\%$). After adjusting for possible publication bias, the mean effect size decreased from 0.76 to 0.62 (95% CI: 0.12 ~ 1.11; number of trimmed studies: 1). Because of the small number of comparisons, we did not conduct subgroup analyses.

The STPP was compared with antidepressants in only one study (Salminen et al., 2008), reporting equal efficacy. Two studies compared antidepressants with combined antidepressants and STPP (Burnand, Andreoli, Kolatte, Venturini, & Rosset, 2002; de Jonghe, Kool, van Aalst, Dekker, & Peen, 2001), both finding the addition of STPP to antidepressants more effective than antidepressants alone. One study compared combined STPP and antidepressants with STPP alone (de Jonghe et al., 2004). This study reported equivocal results; client self-report measures suggested the superiority of combined

TABLE 11.8 Efficacy of Short-Term Psychodynamic Psychotherapy (STPP) Compared to Control Groups, Other Psychotherapies, and Pharmacotherapy

	N_{comp}	D	95% CI	Z	I^2	NNT
STPP versus control groups						
– All studies	5	0.76	0.34 ~ 1.17	3.60**	22.90	2.44
Publication bias						
◙ After correction for publication bias		0.62	0.12 ~ 1.11			2.96
STPP versus other psychotherapies						
– All studies	17	–0.42	–0.71 ~ –0.14	–2.93**	58.04**	4.27
– One possible outlier removed[a]	10	–0.37	-0.70 ~ –0.05	–2.24*	57.95*	4.85
– BDI only	12	–0.37	–0.65 ~ –0.09	–2.55*	*40.41*	4.85
– HAM-D only	3	–0.14	–0.53 ~ 0.26	–0.68	0.00	12.82

Notes: *$p < .05$; **$p < .01$; italic numbers indicate a nonsignificant trend ($p < .10$). A positive d indicates that STPP is more effective than the alternative treatment; but when STPP is compared to combined treatments, a positive d indicates that the combined treatment is more effective.
[a] Shapiro et al. (1994)

treatment, while therapist self-reports and independent measures did not confirm these findings. Because these numbers of studies were too small to calculate separate analyses, we compared STPP with other psychotherapies only.

We could compare STPP with other psychotherapies at posttreatment in 10 studies, totaling 17 comparisons over 628 subjects (266 in the STPP conditions and 362 in the other psychotherapy conditions). The other psychotherapies consisted of cognitive behavior therapy ($N = 11$), behavior therapy ($N = 3$), cognitive therapy ($N = 2$), supportive therapy ($N = 1$), nondirective counseling ($N = 1$), and art therapy ($N = 1$). Table 11.8 shows the results of this comparison. The pooled mean effect size for the difference at posttreatment was –0.42 (95% CI: –0.71 ~ –0.14), indicating a moderate and significant superiority of the other psychotherapies. Heterogeneity was moderate ($I^2 = 58.04\%$). Repeating this analyses, excluding one study that included multiple comparisons (Shapiro et al., 1994), resulted in a somewhat lower effect size ($d = -0.37$; 95% CI: –0.70 ~ –0.05). Using only the BDI as outcome measure resulted in a somewhat lower effect size as well ($N = 12$; $d = -0.37$; 95% CI: –0.65 ~ –0.09), while using only the HAM-D as outcome measure no significant differences were found between STPP and other psychotherapies ($d = -0.14$; 95% CI: –0.53 ~ 0.26). However, this analysis included three comparisons only.

Only one study compared STPP with a control condition at follow-up (Cooper et al., 2003). This study (among women with postpartum depression) found no differences between STPP and the care-as-usual control group at 4.5-, 9-, 18-, and 60-month follow-up.

Conclusion

We found indications that STPP is effective in the treatment of depression in adults when compared to waiting list or care-as-usual conditions. These results are in line with earlier reviews on efficacy of STPP for general psychiatric disorders, which generally found STPP superior to minimal or no treatment (Abbass et al., 2006; Anderson & Lambert, 1995; Crits-Christoph, 1992; Leichsenring et al., 2004; Svartberg & Stiles, 1991). Comparing STPP to other treatments, we found that other psychotherapies might be more efficacious at posttreatment. For studies addressing the efficacy of STPP versus antidepressants, STPP versus combined treatments, and combined treatment versus antidepressants, as well as STPP follow-up, research is scarce.

trol Groups, Other

I^2	NNT
22.90	2.44
	2.96
58.04**	4.27
57.95*	4.85
40.41	4.85
0.00	12.82

es that STPP is more
e *d* indicates that the

= –0.14; 95% CI:
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These results should be interpreted with caution, however, because of the suboptimal quality of the included studies and the possibility of publication bias. Furthermore, different STPP types were used in the studies, and it remains unclear whether these results hold up for one specific STPP type.

REMINISCENCE AND LIFE REVIEW THERAPY FOR OLDER ADULTS

Reminiscence has been defined as "the vocal or silent recall of events in a person's life, either alone or with another person or group of people" (Woods, Portnoy, Head, & Jones, 1992). In life review therapy (LRT), reminiscence is used in a structured and evaluative format to resolve past and current conflicts or for lending meaning and coherence to past or current experiences (Bohlmeijer, Roemer, Cuijpers, & Smit, 2007). In the last few decades, LRT has been used in several target populations with differing goals, including the stimulation of cognitive functioning in the demented elderly, an increase in life satisfaction and quality of life in older adults in general, and as a treatment method for older adults with depressive symptoms or major depression. LRT is based on the work by Butler (1963) who postulated life review as a naturally occurring process, mainly in late life, that is characterized by the progressive return to consciousness of past experiences, and, particularly, the resurgence of unresolved conflicts that is caused by the realization of approaching death. Basic characteristics of LRT are: structure (systematic focus on whole life span), integration (focus on both positive and negative events), and evaluation.

Clinical Guidelines and Earlier Meta-Analyses

We found two earlier meta-analyses examining the efficacy of LRT in depressed older adults (Bohlmeijer, Smit, & Cuijpers, 2003; Pinquart, Duberstein, & Lyness, 2007). Both found large and significant effect of LRT in depressed older adults compared to control groups ($d = 1.23$ and $d = 1.00$ respectively), although they also included nonrandomized controlled studies. None the reviewed treatment guidelines mention the use of LRT in depression.

Efficacy

We found four studies (six comparisons) between LRT and a control condition, with a total of 268 participants (173 in the LRT conditions and 95 in the control conditions).

None of these studies met all quality criteria. The mean effect sizes of these comparisons was 1.33 (95% CI: 0.53 ~ 2.13; NNT = 1.53), with high heterogeneity ($I^2 = 85.17$, $p < 0.001$). However, the two effect sizes from one study had very high effect sizes (3.01 and 1.61 respectively; Fry, 1983). After removal of these possible outliers, the mean effect size dropped to 0.76 (95% CI: 0.34 ~ 1.18; NNT = 2.44), and heterogeneity dropped to zero. There was no indication for publication bias (the adjusted effect size was exactly the same as the unadjusted effect size). Because of the small number of effect sizes, we did not conduct subgroup analyses.

We found no study in which LRT was directly compared to another psychological treatment, to pharmacotherapy, or a combined treatment of pharmacotherapy and LRT, nor did we find a study in which pharmacotherapy was compared to a combined treatment of LRT and pharmacotherapy.

None of the studies reported data on follow-up measurements at which LRT could be compared to control groups.

Conclusion

Although the number of studies examining the efficacy of LRT is relatively small, we did find significant indications that LRT may be an efficacious treatment of depression in older

adults. However, no studies have compared LRT therapy to other types of treatments or combinations of treatments, and none of the studies on LRT met all our quality criteria. Although LRT is a promising treatment, especially because it is acceptable and feasible among older adults, more research is needed to establish its relative efficacy better.

COUPLE THERAPY

Couple therapy (COT) is a form of psychological intervention in which the presence of both partners in sessions is required (Snyder, Castellani, & Whishman, 2006). There are several models to treat couples, including cognitive, behavioral, systemic or insight-oriented approaches. While they differ in theory and in how the therapy is conducted, they share the aim of modifying negative interactional patterns and promoting supportive aspects of dyadic relationships, with the aim to change the interpersonal aspect linked to depression. Within CBT there are a diversity of approaches, from more behavioral to ones that integrate acceptance (Jacobson, Christensen, Prince, Cordova, & Eldridge, 2000). Couple therapy has been advocated for depressed patients who have a regular partner and is motivated by the fact that there is a high prevalence of couple distress that can lead to emotional problems (Wheeler, Christensen, & Jacobson, 2001). Hence, treating both partners in a relationship can result in improved mental health for one or both partners in the couple.

Clinical Guidelines and Earlier Meta-Analyses

We found one earlier meta-analysis examining the efficacy of COT in depressed adults (Barbato & D'Avanzo, 2006, 2008). This meta-analysis identified only two studies in which COT was compared with a control condition, and several more in which COT was compared with other psychotherapies. This study demonstrated that COT had a large effect on depression compared to the untreated controls, but no significant difference was found between COT and other psychotherapies, although there were indications that COT resulted in lower levels of couple distress.

Relationship problems in couples may be both a cause and a consequence of depression. The NICE (2004) recommends considering couple therapy (marital therapy) for patients who have a regular partner if individual therapy was not successful (15 to 20 sessions). The APA (2000), Swedish (Åsberg et al., 2004), and Dutch guidelines (CBT/Trimbos Institute, 2004, 2009) recommend COT, especially COT based on CBT techniques, if there is an indication of marital distress.

Efficacy

We found two studies in which COT was compared to a control condition (Beach & O'Leary, 1992; Teichmann, Bar-El, Shor, Sirota, & Elizur, 1995), with a total of 60 participants (30 in the COT conditions and 30 in the control groups). None of the two studies met all quality criteria. The mean effect size of these studies was 0.66 (95% CI: 0.03 ~ 1.29; NNT = 1.54), with low heterogeneity ($I^2 = 30.41$). Because of the small number of effect sizes, we did not examine publication bias (at least three studies are needed to examine this), nor did we conduct subgroup analyses.

Two more studies compared efficacy of COT with pharmacotherapy (Dessaulles, Johnson, & Denton, 2003; Leff et al., 2000). Both found no significant difference between the two treatments ($d = 0.00$; 95% CI: –0.42 ~ 0.42; $I^2 = 0$). Three other studies compared COT with individual therapies (Emanuels-Zuurveen & Emmelkamp, 1996, 1997; Jacobson, Dobson, Fruzzetti, Schmaling, & Salusky, 1991). A meta-analysis of these three studies resulted in a small, nonsignificant effect size in favor of the comparison therapy (COT was less effective; $d = –0.24$; 95% CI: –0.63 ~ 0.15;

TABLE 11.9 Overview of the Results of Meta-Analyses of Evidence-Based Psychotherapies for Adult Depression

	Psychotherapy Versus Control				Versus Other Psychotherapies		Versus Pharmacotherapy		Versus Combined Treatment		PHA Versus Combined Treatment	
	N	*D*	NNT	ADJ	*N*	*D*	*N*	*D*	*N*	*D*	*N*	*D*
Cognitive behavior therapy	91	0.67	2.75	0.41	56	0.03	15	0.03	8	0.15	6	0.27**
Behavioral activation therapy	11	0.88	2.15	0.50	21	0.14*	1	–	0	–	0	–
Self-control therapy	6	0.45	4.00	0.29	2	–	–		1	–	0	–
Problem-solving therapy	14	0.87	2.16	0.41	7	0.40*	5	–0.11	1	–	1	–
Social skills training	3	0.63	2.91	0.63	7	0.05	0	–	0	–	1	–
Interpersonal psychotherapy	12	0.68	2.70	0.68	8	0.21**	8	–0.17**	4	0.18*	8	0.22
Nondirective supportive therapy	14	0.57	3.18	0.49	30	–0.17**	4	–0.15	1	–	0	–
Short-term psychodynamic psychotherapy	5	0.76	2.44	0.62	17	–0.42***	1	–	1	–	2	–
Life review therapy	6	1.33	1.53	1.33	0	–	0	–	0	–	0	–
Couple therapy	2	0.66	2.78	–	3	–0.24	2	0.00	0	–	0	–

Note: *: $p < 0.1$; **: $p < 0.05$; ***: $p < 0.01$
Abbreviations: Adj: adjusted effect size after correction for publication bias; NNT: numbers-needed-to-be-treated

$I^2 = 17.44$, n.s.). None of the studies reported data on follow-up measurements at which COT could be compared to control groups.

Conclusion

The number of studies examining COT is too small to draw definite conclusions about its efficacy. The available evidence suggests that COT may be effective in the treatment of depression compared to control groups, but there is no convincing evidence that it is better than other psychotherapies. More research is needed to establish its relative efficacy.

OVERALL CONCLUSIONS

In this chapter we reviewed meta-analyses, clinical guidelines, and primary studies of 10 evidence-based psychotherapies for adult depression. The primary studies of these 10 psychotherapies were analyzed in a series of meta-analyses. In Table 11.9 we have summarized the results of these meta-analyses. As can be seen, by far the majority of studies have examined the efficacy of CBT. However, a considerable number of studies have examined BAT, PST, IPT, and NDST (with more than 10 controlled studies examining each of them). SCT, SST, STPP, and COT were each examined in a handful of studies and have a much smaller research base. However, all psychotherapies were found to have a significant effect on depression in adults compared to control groups, and when comparing the different types of psychotherapy directly, we found only few indications that some therapies were more efficacious than others (Cuijpers, van Straten, Andersson, et al., 2008). Furthermore, the detected differences between studies were small and could very well be caused by outliers. A considerable number of studies also compared efficacy of psychotherapy to pharmacotherapy and combined treatments. However, by far the majority of these studies examined CBT, and to a lesser extent IPT. Several of the other therapies were not compared to these treatments at all or only in one or two studies. Most evidence indicates that CBT is as effective as pharmacotherapy and that a combined treatment is more efficacious than pharmacotherapy alone, but not than CBT alone. IPT seems to be somewhat less

efficacious than pharmacotherapy and there was a trend indicating that a combined treatment of IPT and pharmacotherapy is more efficacious than IPT alone. At the long term, there is evidence that CBT may prevent relapse rates.

A major concern found in the current chapter is that so few studies met all our quality criteria. For most of the included psychotherapies no studies were found that met all quality criteria. And for the psychotherapies that were examined with high-quality studies (cognitive behavior therapy, problem-solving therapy, and interpersonal psychotherapy), we found indications that these studies resulted in significantly lower effect sizes than the other studies. This suggests that the efficacy of psychotherapies may have been overestimated.

Another major concern is that we found strong indications for significant publication bias for several psychotherapies (Table 11.9). After correcting for publication bias, the effect sizes for most psychotherapies were considerably smaller than the original effect sizes. This is another indication that the currently published research may have overestimated the efficacy of several psychotherapies.

Limitations

Our study has several limitations. One important limitation is that we only examined studies that met our definition of evidence-based psychotherapies. This implies that psychotherapies that have been examined in only one study are not included, even if this study is very large and has a high quality. One important example of a psychotherapy that was excluded for this reason is the Cognitive Behavioral Analysis System of Psychotherapy (CBASP), which has been studied in only one study (Keller et al., 2000), even though this study included 681 depressed patients, which is by far the largest psychotherapy study described in this chapter. We also did not include any third-generation cognitive therapies. Another limitation is that the number of studies examining several of the psychotherapies was small and that the quality of these studies was not optimal.

We found only few studies that were specifically aimed at dysthymia. Many of the included studies were aimed at patients with either major depression or dysthymia (or both), but very few examined patients with dysthymia only. Furthermore, most of these studies examined combined treatments of psychotherapy and pharmacotherapy and very few compared psychotherapies to untreated controls. This implies that we cannot draw any definite conclusions about psychotherapies for dysthymia.

We also found that very few studies examined the long-term efficacy of psychotherapies, with the exception of cognitive behavior therapy and to a lesser extent interpersonal psychotherapy. This research has shown that cognitive behavior therapy probably has a significant effect on relapse rates, and interpersonal psychotherapy may be beneficial at the longer term. From other psychotherapies we do not know very much about their efficacy at the longer term.

Despite the limitations of this study, we can conclude that there is a large body of research showing that psychotherapies are efficacious in the treatment of depression.

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